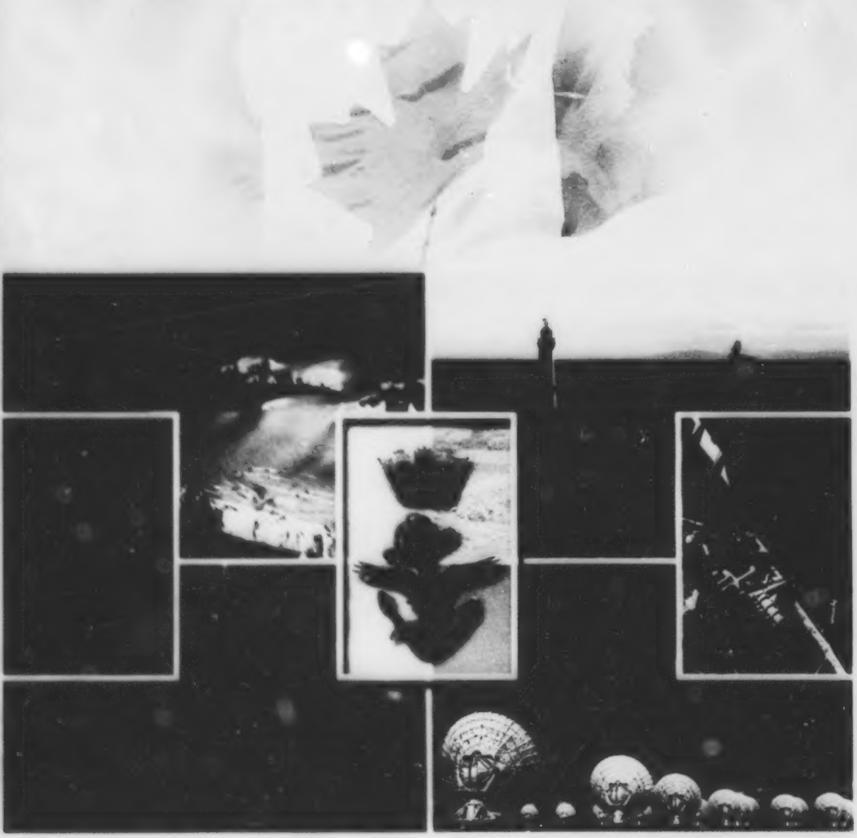
LEADMARK
The Navy's Strategy
for
2020



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18 June 2001

FOREWORD

Leadmark: The Navy's Strategy for 2020 is issued under my authority as Chief of the Maritime Staff and Commander of Maritime Command. Although intended primarily for naval and maritime air personnel, it will be of interest to the larger Canadian security and defence community, and to other Canadians with interests in national defence and international security.

We live in interesting times. Dramatic shifts within the international system promise uncertainty for decades to come. As militaries the world over adjust their force structures to the changing security environment, the Canadian Forces and Maritime Command are no exception. In June 1999, *Shaping the Future of Canadian Defence: A Strategy for 2020 [Strategy 2020]*, was issued jointly by the Chief of Defence Staff and the Deputy Minister. It now is the keystone reference for all force development initiatives in the Canadian Forces (CF) and the Department of National Defence (DND).

Leadmark is a critical link to the capability-based planning framework set in place by *Strategy 2020*. Even as that process continues to evolve, *Leadmark* examines the principles of naval strategy essential for a medium power such as Canada. As a strategic plan, it provides the rationale (the *why*) for capabilities (the *what*) required to fulfil the roles and functions projected for the navy of 2020 and beyond. The implementation of this strategy (the *how*) will be directed in a follow-on document providing tangible instructions from which staffs can develop requirements.

The navy exists to see to the security of Canada and Canadians at and from the sea. So long as Canada wishes to remain engaged in the world, it will require a navy with the capabilities to operate effectively with other national and allied forces. *Leadmark* establishes a reference point by which to steer the proposed development and employment of a rational Canadian naval force structure for the coming decades.

To facilitate reaching as wide and diverse an audience as possible, a condensed version of *Leadmark* has also been published. This abridged version, published in an easy to read pamphlet form, focuses the reader's attention on the key concepts and arguments developed in this larger document.

G.R. Maddison
Vice-Admiral
Chief of the Maritime Staff

LEADMARK:

The Navy's Strategy for 2020

***lead´mark** n. (navigational) a fixed point of reference, to lead a vessel in making a safe passage, ahead of and in line with a chosen course; an aid for turning onto and steering that chosen course; used also to mark clearing bearings (cf.) past known but unmarked shoals and other dangers.*

ACRONYMS *and Abbreviations*

AAD	Area Air Defence
AAW	Anti Air Warfare
ALSC	Afloat Logistics and Sealift Capability
ALSS	Advanced Logistic Support Site
ADF	Australian Defence Force
AEW	Airborne Early Warning
AIP	Air Independent Propulsion
AOR	Auxiliary Oiler Replenishment Vessel
ASW	Anti Submarine Warfare
ASuW	Anti Surface Warfare
C2	Command, Control
C4ISR	Command, Control, Communications, Computers, Intelligence Reconnaissance and Surveillance
CADRE	Command and Control, Air Defence Replacement
CANUS	Canada-United States
CAS	Chief of the Air Staff
CATG	Canadian Task Group
CBM	Confidence Building Measures
CDS	Chief of the Defence Staff
CF	Canadian Forces
CFSU	Canadian Forces Support Unit
CIMIC	Civil - Military Cooperation
CJTL	Canadian Joint Task List
CLS	Chief of the Land Staff
CMS	Chief of the Maritime Staff
COE	Concept of Employment
DCDS	Deputy Chief of the Defence Staff
DD/DDE	Destroyer / Destroyer Escort
DDA	Director Defence Analysis
DDG	Guided Missile Destroyer
DDH	Helicopter Carrying Destroyer
DFAIT	Department of Foreign Affairs and International Trade

DFO	Department of Fisheries and Oceans
DGSP	Director General Strategic Planning
DM	Deputy Minister
D Mar Strat	Director(ate) of Maritime Strategy
DND	Department of National Defence
DPG	Defence Planning Guidance
ECS	Environmental Chief of Staff
EEZ	Exclusive Economic Zone
EMP	Electro-magnetic Pulse
EW	Electronic Warfare
FELEX	Frigate Equipment Life Extension
FFH	Helicopter Carrying Frigate
FLS	Forward Logistics Site
FPS	Force Planning Scenarios
GDP	Gross Domestic Product
HFSW Radar	High Frequency Surface Wave Radar
HMCS	Her Majesty's Canadian Ship
HNS	Host Nation Support
HQ	Headquarters
HR	Human Resources
ICBM	Intercontinental Ballistic Missile
IO/IW	Information Operations / Information Warfare
IRF	Immediate Reaction Forces
JFHQ	Joint Force Headquarters
JTF	Joint Task Force
LTCP	Long Term Capital Plan
MARCOM	Maritime Command
MARLANT	Maritime Forces Atlantic
MARPAC	Maritime Forces Pacific
MCF	Main Contingency Force
MCDV	Maritime Coastal Defence Vessel
MCP	Maritime Capability Plan
MCPG	MARCOM Capability Planning Guidance
MENA	Middle East and North Africa
MND	Minister of National Defence
MPA	Maritime Patrol Aircraft
NATO	North Atlantic Treaty Organization

NAVRES HQ	Naval Reserve Headquarters
NBC	Nuclear Biological Chemical
NDHQ	National Defence Headquarters
NGO	Non-governmental Organization
NMD	National Missile Defence
NORAD	North American Aerospace Defence
NRCAN	Natural Resources Canada
O&M	Operations and Maintenance
OGD	Other Government Department
OPI	Office of Primary Interest
OOTW	Operations Other than War
PLAN	People's Liberation Army Navy
QOL	Quality of Life
RAN	Royal Australian Navy
RCAF	Royal Canadian Air Force
RCN	Royal Canadian Navy
RCNR	Royal Canadian Naval Reserve
RCNVR	Royal Canadian Naval Volunteer Reserve
R&D	Research and Development
RCMP	Royal Mounted Canadian Police
RMA	Revolution in Military Affairs
RN	Royal Navy
RNZN	Royal New Zealand Navy
S&T	Science and Technology
SAR	Search and Rescue
SCP	Strategic Capabilities Plan
SCONDVA	Standing Committee on National Defence and Veterans Affairs
SDF	Strategic Defence Forum
SELEX	Submarine Equipment Life Extension
SNFL	Standing Naval Forces Atlantic (See also STANAVFORLANT)
SSBN	Nuclear Powered Ballistic Missile Submarine
SSGN	Nuclear Powered Guided Missile Submarine
SSK	Conventionally Powered Submarine
SSN	Nuclear Powered Attack Submarine
STANAVFORLANT	Standing Naval Forces Atlantic (See also SNFL)
STANAVFORMED	Standing Naval Forces-Mediterranean
TG	Task Group

TSSU	Tactically Self-Sufficient Units
UK	United Kingdom of Great Britain and Northern Ireland
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
US	United States of America
USN	United States Navy
USSR	Union of Soviet Socialist Republics
VCDS	Vice Chief of the Defence Staff
WMD	Weapons of Mass Destruction

TABLE *of Contents*

ACRONYMS / ABBREVIATIONS......................IV TO VII

PART 1: SETTING COURSE 1

PART 2: SELECTING A LEADMARK...........................7

Strategic Capability Planning for the CF 9

Assumptions...17

Concepts, Roles, Tasks, Capabilities and Competencies................18

The Maritime Force Development Process....................................20

Summary...25

PART 3: GATHERING THE INSTRUMENTS 27

The Roles of Navies..29

Approaches to Naval Strategy..41

A Typology for Navies...43

Some Principles of Medium Power Naval Strategy........................46

Conclusion 49

PART 4: STERNMARK TO 2020................................51

The Canadian Navy, the First Hundred Years 52

The Early Years...53

The Second World War 56

The Cold War...58

Post Cold War to the Present...63

Current Developments — The Next Navy 67

Summary...70

PART 5: CLEARING BEARINGS: THE FUTURE SECURITY ENVIRONMENT 71
The Canadian Forces & the Future Security Agenda 73
Trend Analysis 76
Future Security Challenges 77
Force Planning Scenarios 86
Future Maritime Security Environment 87
Summary 90

PART 6: LEADMARK: MISSION, VISION AND STRATEGY FOR CANADA'S NAVY 91
Canadian Naval Roles and Functions 93
Principles of a Canadian Naval Strategy 100
Core Canadian Naval Competencies 117
Conclusion:Leadmark 119

PART 7: PREPARING THE NOTEBOOK: FUTURE NAVAL CAPABILITY REQUIREMENTS 121
Future Capability Requirements 128
Basic Competency Components 128
- *C4ISR* 128
- *Self-Defence* 132
- *Force Generation (Resource Acquisition)* 137
- *Sustainment (Resource Maintenance)* 143
- *Sustainment (Operational)* 145
- *Organic Air* 147

Force Multiplier Competency Components 149
- *Force Defence* 150
- *Support to Other Forces* 157
- *Tailored capabilities for OOTW* 164

Summary 166

PART 8: "ON TRACK BY LEADMARK" 167

SELECTED BIBLIOGRAPHY....................................171

ACKNOWLEDGEMENTS..175

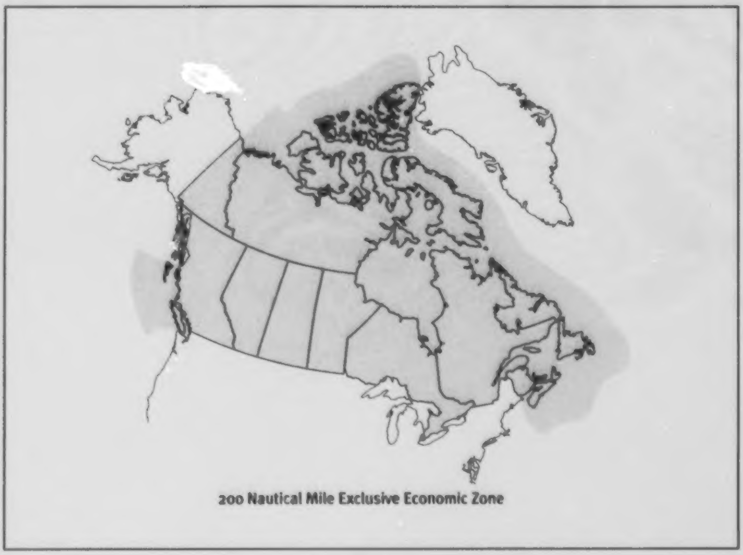
APPENDIX A
SELECTED DOCUMENTATION A1

APPENDIX B
FORCE PLANNING SCENARIOS B1

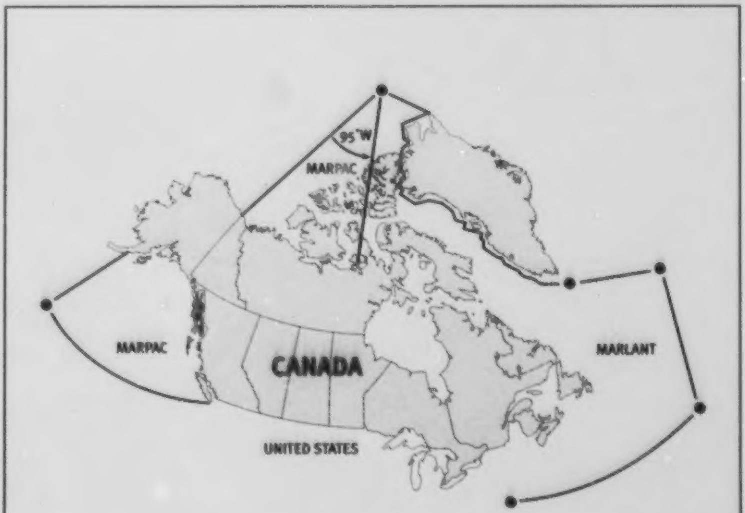
APPENDIX C
CANADIAN NAVAL
OPERATIONS, 1945-2000 ....C1

APPENDIX D
FUTURE NAVAL ASSESSMENT................................D1

GLOSSARY GL1


200 Nautical Mile Exclusive Economic Zone

Map 1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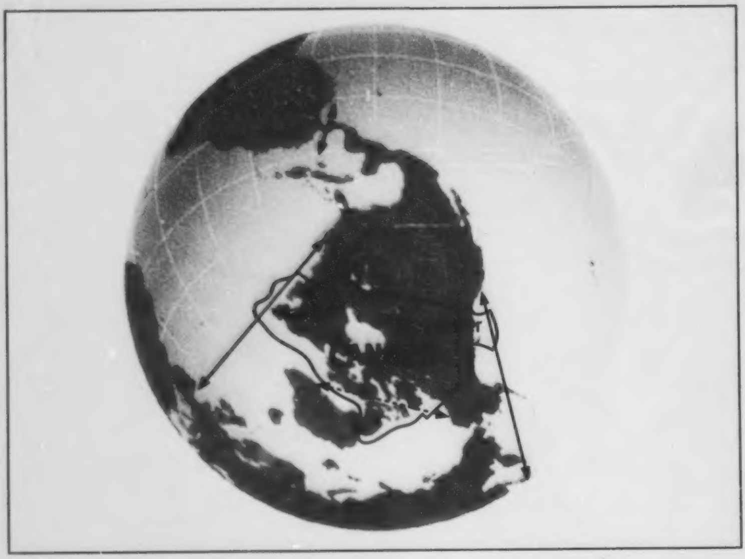
MARPAC
MARPAC
CANADA
MARLANT
UNITED STATES

Map 2



Map 3

Map 4

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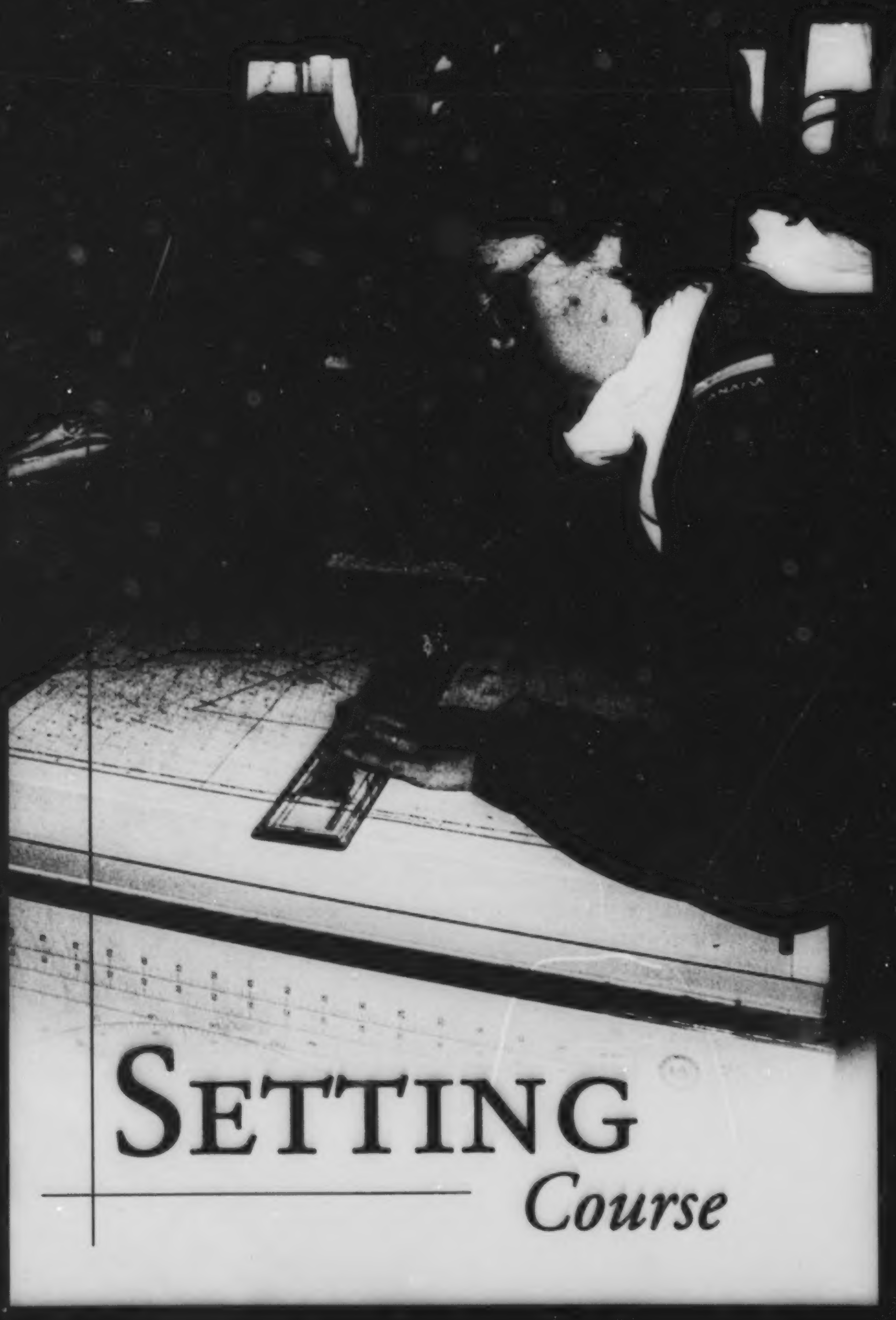

SETTING *Course*

1

SETTING *Course*

As an active member of the global community, Canada has significant maritime interests. Despite the lure of continental influences, the sea remains an important part of the national identity. It is our gateway to the world.

Canada boasts the longest coastline of any nation, bordering on three oceans — Atlantic, Pacific and Arctic.[1] The country's exclusive economic zone (EEZ) constitutes an offshore estate more than two-thirds that of the landmass and is blessed with an abundance and variety of mineral and biological resources (see map 1). Defence responsibilities to our allies extend Canada's reach even further: to the North Pole and halfway across each of the Atlantic and Pacific Oceans (see map 2).[2] Nearly three-quarters of Canada's Gross Domestic Product (GDP) is derived from international trade, placing Canada among the major trading nations of the world. The container ports of Vancouver, Halifax and Montreal are linked to their overseas counterparts by the global highways of the oceanic trade routes (see map 3). As such, the world beyond — the "global village" — has a significant maritime dimension (see map 4):

> *Over 70 per cent of the world's surface is covered by sea, 80 per cent of countries have a coastline and most of the world's population live within 300 miles [500 kilometres] of the coast. Only areas deep inside Russia, parts of central Africa, South America, northern Canada, Greenland and the USA are beyond the 650 miles [1000 km] coastal or* ***littoral*** *regions....*[3]

And while the seas open the world to Canada, they serve also in our defence. The vast expanse and harsh environments of northern waters — and the assurance of opposition along the way — historically have given pause to others who might launch an assault from across the seas.

---

[1] The facts of Canada's maritime nature and the consequent case for a national navy have been made before. *Leadmark* accepts these as fundamental principles, but readers interested in greater background detail are invited to refer to: Glen J. Herbert, *Canada's Oceans Dimension*: A Factbook (Halifax, NS: Maritime Affairs Press, 1999, Niobe Papers, Vol 11); and Fred W. Crickard and Peter T. Haydon, *Why Canada Needs Maritime Forces* (Nepean, ON: Napier Publishing for The Naval Officers' Association of Canada, 1994).

[2] As illustrated in map 2, beyond the jurisdictions of territorial seas and exclusive economic zones, Areas of Responsibility (AORs) have been established between Canada and the United States for continental defence, and within the North Atlantic Treaty Organization (NATO) Regional Planning Group for North America (CUSRG).

This document will consider Canada's geo-strategic location, interests and history, as well as the dramatic shifts within the international system in the recent past and the uncertainty of the decades to come. In this changing security environment, it is imperative to establish a point of reference to guide the Canadian navy on its course into the future. *Leadmark* is that point of reference. It will articulate a strategy for the future development of a coherent Canadian naval force structure and its most effective employment. Although intended primarily for naval and maritime air personnel, it will be of interest to the larger Canadian security and defence community, and to other Canadians with interests in national defence and international security.

As such, to make the text more widely accessible, some latitude has been taken in the use of language. For example, the proper name of Canada's navy is Maritime Command (MARCOM). In security and defence circles, however, the term "maritime" has a wider connotation, generally understood to encompass other issues, such as a national shipbuilding policy, oceans management, employment of the merchant marine, and international maritime law. To avoid confusion, in this work the phrases "naval forces" and "navy" will be used. They should be taken also to include those elements of Air Command with maritime responsibilities (the Maritime Air Components, MAC). In similar fashion, every effort has been taken to address capabilities in a general sense; where specific reference to types of units cannot be avoided, terms such as "warships" should be taken also to include all naval platforms.

In 2010, the Canadian navy will celebrate its centennial as a proud national institution. But new challenges await the navy, as shifting conditions through the first quarter of the 21st century bring new relevance to a variety of maritime issues. The shrinking of the Arctic icecap could, in the near future, see the advent of commercial navigation via the Northwest Passage . Depletion of ocean resources elsewhere is likely to increase demands by others for access to our own. Piracy and the rise of "states of concern" will threaten to challenge the free passage of goods upon the seas. Canada has extensive global interests, and seaborne access to vast sweeps of the planet's surface will figure more than ever in the pursuit of conflict resolution. Safeguarding Canada's maritime resources, maintaining our enjoyment of freedom of movement upon the oceans, and exploiting our natural seaward defences argue strongly for the sustainment of a robust naval force.

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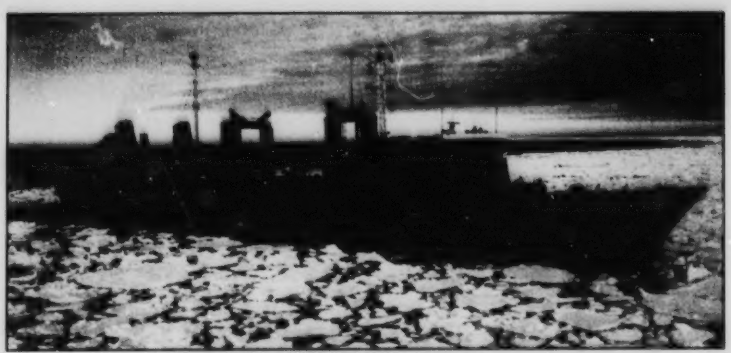
[3] *Jane's Amphibious Warfare Capabilities* (Coulsdon, UK: Jane's Information Group, 2000), "Foreword", p. 1. There is no formal agreement on the actual extent of the "littoral". *Leadmark* uses the following definition (all definitions also are included in the accompanying Glossary [original sources indicated at the end of the entry]):

> ***littoral*** *— coastal sea areas and that portion of the land which is susceptible to influence or support from the sea, generally recognized as the region which horizontally encompasses the land-watermass interface from 100 kilometres (km) ashore to 200 nautical miles (nm) at sea, and extending vertically into space from the bottom of the ocean and from the land surface (adapted from* BR 1806 and USN Oceanographic Command).



***HMCS Preserver* during Exercise Ice Edge 1988.** *(CF Photo)*

Protection of Canada's sovereignty at sea, collective defence, and contributing to international peace and stability will continue to be the priorities of the Canadian navy. Geography, economics, demographics and the shift to the information age all dictate that Canada's global interests will continue to be served best by operating in concert with our traditional allies. This will proceed through international institutions such as the United Nations (UN), the North Atlantic Treaty Organisation (NATO), and the Canada-United States (CANUS) agreements for the defence of North America, even as the role of non-governmental organisations (NGOs) evolves. At the same time, the promise of the 21st century is that emerging technologies and evolving concepts of command and control will allow the unique capabilities of the navy to join more effectively than ever before with those of the army and the air force. Improved interoperability amongst the constituent elements of the Canadian Forces promises a ***joint*** and ***combined***[4] capability that will allow Canada to exercise greater independence in its foreign and defence policy. A robust maritime arm is an indispensable part of that approach.

This document is not the first by the Maritime Staff to use the principles established in the *1994 Defence White Paper*[5] to guide the future development and potential use of Canada's navy. The latest in an evolutionary line, *Leadmark* refines the course set in two naval offerings from the past decade. *The Naval Vision*,[6] promulgated in 1994, made the case that the navy is a long-term investment in security, and explained why Canada needs such forces when not immediately facing war. An even more ambitious venture, *Adjusting Course: A Naval Strategy for Canada*, appeared in 1997. That document attempted to project the evolving strategic environment of an uncertain world, and to chart a way ahead for our navy:

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[4] Here and elsewhere, readers will see reference to the terms "joint" and "combined". They are defined as follows:

> ***joint*** *— an adjective that connotes activities, operations, organizations, etc in which elements of more than one service of the same nation participate (SCP); and,*
> ***combined*** *— an adjective that connotes activities, operations, organizations, etc between two or more forces or agencies of two or more allies (SCP).*

The phrase "joint and combined" allows that the Canadian navy shall be prepared to operate, not just with the other services of the Canadian Forces, but with any of the navies, armies or air forces of our principal allies.

> *The end of the Cold War removed the strategic certainties that had long bound our horizon. We are faced with the challenge of crafting a truly national stance on the world stage, one unencumbered by colonial baggage and less dependent on Alliance considerations... [Adjusting Course] embodies [the Maritime Staff's] professional consensus, and provides a common frame of reference for consideration of maritime issues, hopefully as a catalyst for thought.*[7]

The conclusion suggested in the title of *Adjusting Course*, that the post-Cold War navy essentially was on the right track and required only minor course corrections, has been proven correct. But, *Adjusting Course* also was developed admittedly in the absence of a common departmental frame of reference. Much has changed in the few short intervening years. Of particular note was the publication in June 1999 of *Shaping the Future of Canadian Defence: A Strategy for 2020.*[8] Commonly referred to by its short title, *Strategy 2020* was issued jointly by the Chief of Defence Staff and the Deputy Minister. It now is the keystone reference for all force development initiatives in the Canadian Forces (CF) and the Department of National Defence (DND). In providing a common framework, *Strategy 2020* charts the way ahead for the defence forces of Canada in the first decades of the 21st century.

With that new common framework in place, the general course into the future for the Canadian Forces is set. It now is proper to conduct another in the periodic naval reassessments of strategic developments. Building upon *Adjusting Course* and *The Naval Vision*, *Leadmark* establishes a reference point by which to steer the proposed development and employment of a rational Canadian naval force structure for the coming decades. The remaining parts of this volume are constructed in the following format (note that these are intended to form both a coherent whole and stand-alone pieces for those with particular interests):

- Part 2, Selecting a Leadmark, describes the underlying policies, assumptions, concepts and processes employed in the development of *Leadmark*.

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[5] *1994 Defence White Paper* (Ottawa: Canada Communications Group, 1994).

[6] *The Naval Vision: Charting the Course for Canada's Maritime Forces into the Next Century* (Halifax, NS: Canada Communications Group, 1994).

[7] *Adjusting Course: A Naval Strategy for Canada* (Ottawa: Canada Communications Group, 1997), p. iii.

[8] *Shaping the Future of Canadian Defence: A Strategy for 2020* (Ottawa: National Defence, 1999).

- Part 3, Gathering the Instruments, is a theoretical discussion of the roles of navies and the concept of naval strategy.
- Part 4, Sternmark to 2020: Canada's Navy, The First Hundred Years, examines *Leadmark*'s legacy in the historical and present employment of the fleet.
- Part 5, Clearing Bearings: The Future Security Environment, explores global trends with a specific view to the challenges in the naval security environment.
- Part 6: Leadmark: Mission, Vision and Strategy for Canada's Navy, articulates the principles to be followed in achieving the navy's strategic vision.
- Part 7, Preparing the Notebook: Future Naval Capability Requirements, identifies those capabilities required to undertake the anticipated roles and functions.
- Part 8, "On Track By Leadmark!", will review the main points and offer some conclusions.

Leadmark is not a shopping list. As a strategic document, it provides the rationale (the *why*) for capabilities (the *what*) required to fulfil projected naval tasks, and in so doing establishes a coherent linkage to *Strategy 2020*. *Leadmark* is descriptive, not prescriptive. While this document provides the guidance necessary for future naval development, the implementation of that strategy (the *how*) will be directed in a follow-on operational-level document.[9] Tentatively entitled *The Maritime Commander's Strategic Capability Planning Guidance*, it will serve as the bridge between the definition in *Leadmark* of those conceptual level capabilities that will be examined for the navy in 2020, and the most effective achievement of them in the Canadian context. This companion document to *Leadmark* will provide tangible instructions upon which the requirements staffs can act to implement the objectives of *Strategy 2020*.

The process of determining what capabilities will be required by the Canadian navy of 2020 and beyond is dynamic and diversified; *Leadmark* stands as its intellectual underpinning. It provides a point of reference for consideration in deciding the structure of the Canadian navy and in putting the navy to use in the defence of Canada and in opening the world to our future.

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[9] "*Operational planning*... relate[s] to *how* to get the job done, whereas strategic planning is concerned with *what* shall be done." See Leonard D. Goodstein, Timothy M. Nolan and J. William Pfeiffer, *Applied Strategic Planning: A Comprehensive Guide* (San Diego: Pfeiffer & Co, 1992), p. 4. It should be noted that use of the word "operational" in this context refers to that level of business planning methodology (as practised in National Defence Headquarters [NDHQ]), as opposed to the doctrinal context of "the planning of operations".

2

SELECTING a Leadmark

2

SELECTING *a Leadmark*

For the navigator, selecting a leadmark is an exacting process. So too has been the preparation of this document. Planning for *Leadmark* commenced in the autumn of 1999, following direction from the Chief of the Maritime Staff (CMS) to produce the naval complement of *Strategy 2020*. The challenge — to ensure that *Leadmark* is both academically robust and a practical guide to the future — was formidable. Through the valuable input of serving and retired members of the armed forces, as well as the academic community, this challenge was vigorously engaged.[1] The result is that, although *Leadmark* is an indigenous document, it was not produced in splendid isolation. It incorporates work undertaken by a number of other official institutions, both domestic and of our closest allies. (Appendix A provides a précis of the relevant selected national and allied documentation.)

Many of the themes of those earlier works have become accepted wisdom. Although certain of them will be developed in greater depth in subsequent parts of *Leadmark*, for readers not conversant with these developments, this Part is given over to a review of the logic employed in its development. It starts with an overview of departmental **policy** and an explanation of how, for the first time, a common framework guides the strategic development of the Canadian Forces. Key **assumptions** appropriate to this development are also identified. Basic naval **concepts** are then introduced and terminology explained. Finally, the maritime force development **process** is established, as is *Leadmark*'s place in it.

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[1] Certain of these academic and internal background papers have been published in: Edward L. Tummers (ed.), *Maritime Security Occasional Paper No. 11* [hereafter cited as *MSOP 11*] (Halifax, NS: Dalhousie University Centre for Foreign Policy Studies, 2000) (see listing at Appendix A).

It is appropriate at this point to note the special relationship that the Maritime Staff enjoys with the Centre for Foreign Policy Studies at Dalhousie University. Without the work of the CFPS over the past decade in studying the maritime dimensions of Canadian security (see references throughout this document), the production of *Leadmark* in such a constricted timeframe would have been impossible. This relationship has been expanded to include the Centre for Military and Strategic Studies (CMSS) of the University of Calgary, which hosted a conference in March 2001 on the theme, "The Canadian Navy in the Post Cold War Era: New Roles, New Requirements and New Thinking". The proceedings of that conference will be published in 2002 and, along with *MSOP 11*, are a useful companion to *Leadmark*.

2

Strategic Capability Planning for the Canadian Forces

Perhaps the most fundamental development in preparing the Canadian Forces (CF) and the Department of National Defence (DND) to meet the challenges of the 21st century has been the establishment of **policy** transforming the traditional *platform-based procurement* (predicated upon simply the replacement of existing systems) to a *capability-based process*. In the post-Cold War absence of a clearly identifiable "threat", there remains the knowledge that the needs of national sovereignty must be maintained and that security challenges will arise. Capability-based planning provides the mechanism to assure a level of military capacity that is reasonably independent of, yet also relevant to operating with, alliance or coalition partners.

The keystone document in this new process is *Strategy 2020*, which re-emphasizes the three pillars of Canadian security that the *1994 Defence White Paper* charges the CF to undertake:[2]

- defend Canada;
- assist in the defence of North America; and,
- contribute to international peace and security.

As such, *Strategy 2020* begins with a clear, concise statement of the mission of the Canadian Forces and the Department of National Defence:

> The **Defence Mission:** To defend Canada and Canadian interests and values while contributing to international peace and security.

Thereafter, *Strategy 2020* mandates the importance of exploring the implications of emerging defence issues. Two of the most significant of these are:

> **Revolution in Military Affairs (RMA)** — a fundamental transformation that results from changes in weapon technology and equipment, operational concepts (doctrine) and military organizational methods. RMAs usually take place over a few decades and profoundly affect, and often replace, existing war-fighting practices.[3]

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[2] These have been the essence of the various prescriptions for Canadian defence policy offered over the past half-century, even if their order of priority occasionally has varied. Indeed, the *1994 Defence White Paper* has proven remarkably adaptable to the changing post-Cold War strategic environment in large part because of its historical consistency. The complete collection of Canadian Defence White Papers since the end of the Second World War is in Douglas Bland, *Canada's National Defence, Volume I: Defence Policy* (Kingston, ON: Queen's University School of Policy Studies, 1997). Bland prefaces the collection with the observation (p. viii), "If there is an enduring Canadian strategy for national defence, it is expressed in these basic papers."

[3] Adapted from Vice Chief of Defence Staff (VCDS), "The Revolution in Military Affairs (RMA) — A Primer", at http://www.vcds.dnd.ca/dgsp/dda/rma/primer_e.asp

2

Revolution in Military Affairs (RMA)

> **Asymmetric Warfare** — a term used to describe attempts to circumvent or undermine an opponent's strengths while exploiting his weaknesses, using methods that differ significantly from the opponent's usual mode of operations.[4]

The Canadian Forces and DND are keenly aware of the enormous implications of the RMA for Canada and Canadian defence.[5] On the one hand, the RMA presents an opportunity for CF/DND to support the Government's efforts to promote Canada as one of the most innovative nations in the world, by encouraging high technology research and development. On the other hand, the RMA presents very real challenges. The pursuit of rapidly evolving technology will be more and more expensive. Unable to match the resources that will be committed by the United States, Canada must identify those essential military capabilities in which the Canadian Forces must maintain interoperability with its allies, principally the United States. What also cannot be forgotten in any discussion of the RMA is that there is a very real downside of this rapid technological advancement. These same technological developments facilitate potential adversaries in their own exploitation of asymmetric threats. To forestall disruptions due to any such attacks, the Minister of National Defence is charged by the government to lead the collaborative efforts of other government departments in assuring the protection of Canada's critical infrastructure.

But Canada is not an inward-looking nation. The increased potential for asymmetrical attacks on the homeland has brought new urgency to what some scholars have identified as a Canadian grand or national strategy of forward security. Although never formally codified, the notion holds that, with its territorial boundaries safe from direct conventional military assault, Canada is made more secure by seeing to the resolution of global problems at their source, before they can expand to threaten the Canadian heartland.[6] This speaks to the reason why, despite the logic of the truism that "Canada is both indefensible and unassailable", this country has assumed a responsible role in the global community (it is sometimes otherwise referred to as "engaged internationalism"). Having evolved from the cautious Canadian response to the idea of imperial defence, and through the successful application of collective security during the Cold War, the notion arguably is a driving impulse of human security initiatives and is the logical alternative to continental integration and isolationism.[7] And because it requires only the commitment of the country's disposable military force (that is, those forces not required for the direct defence of the homeland), Canada can afford to be selective in its application.[8]

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[4] "Capabilities Required of DND: Asymmetric Threats and Weapons of Mass Destruction" (NDHQ, DCDS/DNBC, 3000-1, May 2001). This departmental Asymmetric Threat Study has identified three broad categories of asymmetric threats: the use of Information Operations (IO), Weapons of Mass Destruction (WMD) and Non-conventional Operations.

[5] This paragraph is adapted from *National Defence Report on Plans and Priorities, 2001-2002* (Canada: DND, 2001), pp. 13-14.

[6] Sean M. Maloney, "Helpful Fixer or Hired Gun: Why Canada Goes Overseas", *Policy Options Politiques* (Journal of the Institute for Research into Public Policy [IRPP]) Vol 22, No 1 (January-February 2001), pp. 59-65. On the notion of a Canadian *strategic culture*, see Douglas J. Murray, "Canada," in Douglas J. Murray and Paul R. Viotti, *The Defense Policies of Nations: A Comparative Study* (Baltimore: The Johns Hopkins University Press, [3rd ed.] 1994), pp. 57-93.

The maritime approaches to Canada constitute also the aerial approaches from other than over the territorial United States. Overseeing the sovereignty of these approaches will remain the fundamental priority of the Canadian Forces. While it is impossible to discount asymmetric threats, the latest Departmental *Strategic Overview* and *Military Assessment* project that a direct conventional military threat to Canada in the foreseeable future is unlikely.[9] This means that, because ours is essentially an island continent, future military operations by the Canadian Forces against another power will be conducted beyond our maritime frontiers. Indeed, ***expeditionary operations*** have been at the core of the Canadian

Expeditionary Operations — *HMCS Protecteur* supporting Canadian land forces in East Timor (Op Toucan) 1999-2000 *(CF Photo)* security tradition and are the logic of the evolving concept of operations for the Canadian Forces (even though the term has fallen out of common usage in Canada, largely as a consequence of rigid Cold War planning mentalities and alliance force structure obligations):[10]

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[7] David G. Haglund, "What Missions for Canada's Armed Forces in the 21st Century?" (paper presented to Security and Defence Forum Consultation, Montreal, December 2000), presents a complementary appreciation of "cooperative security" as the basis of Canadian grand strategy. On the earlier concept, the standard text is Richard Preston, *Canada and "Imperial Defense": A Study of the Origins of the British Commonwealth's Defense Organisation*, 1867-1919 (Durham, NC: Duke University press, 1967).

[8] Joseph Jockel and Joel Sokolsky, "Lloyd Axworthy's Legacy: Human Security and the Rescue of Canadian Defence Policy", *International Journal*, Winter 2000-2001 (LVI:1), pp. 1-18, conclude that "The [Canadian] government has the luxury of choosing when and where it will commit the Canadian military in support of Canadian values and, if it chooses to participate, to select the level of commitment."

[9] *Strategic Overview 2000* (Ottawa: Directorate of Strategic Analysis, 2000); *Military Assessment 2000* (Ottawa: Directorate of Defence Analysis, Department of National Defence, 2000).

> **Expeditionary operations** — military operations that can be initiated at short notice, consisting of forward deployed, or rapidly deployable, self-sustaining forces tailored to achieve a clearly stated objective in a foreign country *(BR 1806)*.

Strategy 2020 encapsulates these various ideas in articulating the path into the future for the Canadian Forces as:

> ***... to position the force structure of the CF to provide Canada with modern, task-tailored and globally deployable combat-capable forces that can respond quickly to crises at home and abroad, in joint or combined operations. The force structure must be viable, achievable and affordable.***

Underlying the prescriptions of *Strategy 2020* is the recognition that the challenges of the future cannot be addressed at the expense of the challenges of the present. To strike a balance between the *change* and the *sustain* agendas, *Strategy 2020* establishes a number of long-term strategic objectives that are fundamental to the navy's own strategy for 2020:

Objective 1:	**Innovative Path**. "Create an adaptive, innovative and relevant path into the future."
Objective 2:	**Decisive Leaders**. "Develop and sustain a leadership climate that encourages initiative, decisiveness and trust while improving our leaders' abilities to lead and manage effectively."
Objective 3:	**Modernise**. "Field a viable and affordable force structure trained and equipped to generate advanced combat capabilities that target leading edge doctrine and technologies relevant to the battlespace of the 21st century."
Objective 4:	**Globally Deployable**. "Enhance the combat preparedness, global deployability and sustainability of our maritime, land and air forces."
Objective 5:	**Interoperable**. "Strengthen our military to military relationships with our principal allies ensuring interoperable forces, doctrine and C4I (command, control, communications, computers, and intelligence)."

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[10] The fundamental concept is prescribed in articles 3.5 and 3.6 of *Strategic Capability Planning for the Canadian Forces*, promulgated by the Vice Chief of Defence Staff (cited formally below). The basing of Canadian Forces in Europe and the evolution of peacekeeping operations were consistent with this tradition.

Objective 6: **Career of Choice**. "Position Defence as a rewarding, flexible and progressive workplace that builds professional teams of innovative and highly skilled men and women dedicated to accomplishing the mission."

Objective 7: **Strategic Partnerships**. "Establish clear strategic, external partnerships to better position Defence to achieve national objectives."

Objective 8: **Resource Stewardship**. "Adopt a comprehensive approach to planning, management and comptrollership, focused on operational requirements, that prepares us to respond rapidly and effectively to change."

Building upon the model suggested in *Strategy 2020* as the way ahead for capability-based planning in DND/CF, *Strategic Capability Planning for the Canadian Forces (SCP)*[11] has been promulgated by the Vice Chief of the Defence Staff. It introduces the following key concepts:

- Concept of Employment (COE) for the CF in 2020[12] — the CF must have the ability to assess the need for, plan the deployment of, sustain and command (as appropriate) deployed forces, at home and abroad. This entails adequate means to command and exploit information and intelligence at the military strategic level. At the operational level, the CF will not need a comprehensive capability — except for limited domestic situations — because the CF will normally participate in international operations as a contributing part of a coalition. Internationally, the small size of the three Canadian services results in relatively few situations where they all operate together as an independent joint force and, as such, the emphasis will be on interoperability with US forces. Noting that the highest intensity of operations to which the CF is likely to be committed will be at the mid-level, the SCP defines that as:

  > **mid-level operations:** *military operations that involve most, if not all, of a nation's forces-in-being and may require the mobilization of additional resources. Deadly force will be applied, although there may be restrictions on the types of weapons used or the geographic area in which they are employed. Military activity will be conducted with speed and violence, but may be non-continuous and localized in an area of operations.*

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[11] VCDS, (1950-1, DDA 3-2), *Strategic Capability Planning for the Canadian Forces* [hereafter cited as: *SCP*], 13 June 2000.

[12] This was originally promulgated in the *SCP* as the "Concept of Operations (CONOPS) for the CF.

- Canadian Joint Task List (CJTL) — a conceptual blueprint to describe the tasks that a military might be called upon to perform. It establishes a framework for describing, and relating, the myriad types of capabilities that may be required, to greater or lesser degrees, by the CF. The CJTL also provides a common lexicon or "language" for CF/DND force development. The CJTL identifies the major Capability Areas (and defines each of them at the Military Strategic, Operational and Tactical levels — see Glossary for definitions):

  Capability Area 1: **Command**
  Capability Area 2: **Information and Intelligence**
  Capability Area 3: **Conduct Operations**
  Capability Area 4: **Mobility**
  Capability Area 5: **Protect Forces**
  Capability Area 6: **Sustain Forces**
  Capability Area 7: **Force Generation**
  Capability Area 8: **Corporate Strategy and Policy**

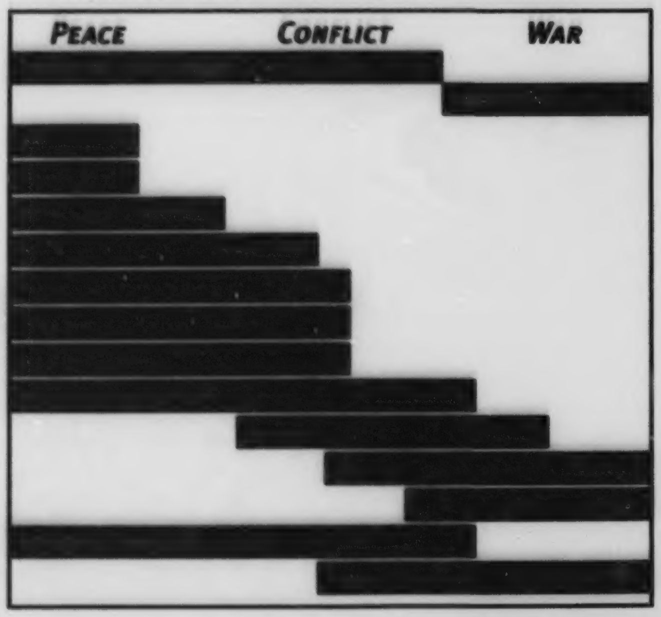
  The specific naval dimension of these capability areas will be described in Part 7. The development of a corresponding Canadian Maritime Task List (CMTL) is being undertaken as part of the follow-on process to *Leadmark*.

- Tactically Self-Sufficient Units (TSSU) — the fundamental asset that the CF requires for international operations (and also a key contributor to domestic operations), capable of integrating into a Combined Force package as a "task-tailored" component. Although this term is new to the CF, the concept is not new to Canada's navy. Indeed, a naval Task Group (TG) serves as an excellent example of one type of TSSU. In a TG, various ships, submarines and aircraft with unique capabilities act in combination, depending upon the mission, to create a synergistic effect multiplying their individual effectiveness. (Note, however, depending upon the circumstances, that, whereas a task group is by definition a grouping of platforms — whether of similar or diverse capabilities — a TSSU could be a single ship, submarine or aircraft. Also, because of the universality of the descriptive term "task group" among navies of the world, *Leadmark* generally will continue to use that term in place of TSSU.)

- Primacy of combat capability — forces trained in military operations can be employed domestically. The reverse is not true. CF units able to undertake expeditionary operations will also be capable, by virtue of the flexibility inherent in well-equipped, highly disciplined military units, of successfully discharging the majority of domestic responsibilities that they might be called upon to perform. Hence, the CF must focus first on units capable of combat in mid-level operations in interstate war.
- Force Planning Scenarios (FPS) — these provide the context in which CF capability requirements and force structure options will be assessed. The eleven scenarios are published in the current edition of The *Defence Plan (DP)*,[13] promulgated annually by the Chief of the Defence Staff and the Deputy Minister. They are fictional situations, intended to illustrate the variety and complexity of military operations across the "spectrum of conflict" (see Figure 1; summary descriptions are contained in Appendix B). The scenarios will evolve as required to ensure they continue to reflect the strategic environment and Canada's defence priorities. Given the complexity of projecting future developments, the scenarios serve more as a reference point than a dictum for strategic planning.

FIGURE 1

FORCE PLANNING SCENARIOS AND THE SPECTRUM OF CONFLICT



ASSUMPTIONS

Strategy 2020, the *SCP*, and the various other publications described in Appendix A, all point to particular emerging trends that could impact on the future of naval operations: these will be of a joint and combined nature, and they will be set in the vast littorals of the world. While the validity of such an assessment will be explored in the following parts of *Leadmark*, some appreciation of the factors guiding its development is useful.

In attempting to identify the military crisis response role in the 21st century, these various publications point also to the fact that, among the other things Canada shares with its allies, is the need to develop some understanding of potential future trends. Experience dictates the exercise of both humility and caution in making any forecasts. Humility comes from the recognition that past analyses sometimes got it wrong: threats often did not materialise as envisioned, many evolved in ways not considered, and others materialised unexpectedly. History is full of such instances and the future will be, too. Nevertheless, however uncertain the future may be, attempts at envisioning it cannot be avoided. As one study aptly puts it, looking to the future "is necessary because the stakes are so high that even an imperfect effort is better than none at all."[14] Indeed, with the high stakes of Canadians' peace and security at issue, there is every reason to look ahead.

It is always possible to posit a different future, but it is not inappropriate to set some bounds to it. All of the national and allied publications cited at Appendix A and above develop a number of common assumptions. While debatable perhaps, these are inherently sensible, based on evidence and logic, and represent a reasonable summation of Canadians' security expectations. Certain of them will be affirmed or illustrated in the course of discussion throughout *Leadmark*, but for ease of reference they are listed here, in their specific Canadian context where appropriate:

- the United States will remain the dominant military power.
- Canada will remain engaged in international affairs and require armed forces.
- Canadian forces may be committed to operations up to mid-level conflict.

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[13] *The Defence Plan*, which replaced *Defence Planning Guidance in 2001*, is itself scheduled to be replaced in 2002 by the *Report on Plans and Priorities*.

[14] United States Government, US Commission on National Security/21st Century. *New World Coming: American Security in the 21st Century* (Washington DC: United States Commission on National Security/21st Century, 1999), p. 3.

- Canada will continue to seek security through collective and cooperative efforts — primarily with the US and other NATO, Pacific and hemispheric partners.
- Canada will need the independent capacity to assert sovereignty.
- while the methods of war may change (RMA), its fundamental nature will not.
- there will be no substantial change in the fiscal environment of the Canadian Forces.

CONCEPTS, ROLES, TASKS, CAPABILITIES AND COMPETENCIES

Works on military concepts generally share the assumption that their use of terminology (or lexicon) is commonly understood. In fact, the frequently interchangeable use of terms such as those listed here, sometimes with only subtle differences in meaning and then often dependent entirely upon context, can create confusion, not just among laymen but also among military professionals themselves. (For example, the basic *roles* of navies, which will be described in Part 3, in certain circumstances could also be *missions* or *tasks*.) This is due in part to the fact that all of these terms have two senses: *descriptive* or cataloguing ("what we do") and *operational* or process ("how we do it"). The introduction within DND/CF of a capability-based force development process places a new emphasis upon the subtle differences in strategic focus that is implied. The following are offered as an indication of their general use within *Leadmark*:

- **Mission, Role and Function** (*descriptive* sense) — terms which define the purpose or basic functions of an organisation, armed force, individual service, group of units or unit. Examples: 1. The Defence Mission is to defend Canada and Canadian interests and values while contributing to international peace and security. 2. The Constabulary Role. 3. Sea control function — Preventive deployment — Aid of the Civil Power.
- **Mission and Tasks** (*operational* sense) — terms used in military operations such as Operation Orders and Force Planning Scenarios, to denote the precise object to be undertaken or achieved. Groups of units or individual units are assigned a mission and subordinate

tasks that in combination contribute to mission success. Examples: Mission — Conduct fisheries patrol in Area XYZ in support of the Department of Fisheries and Oceans. Tasks (partial listing) — 1. Conduct surveillance and establish a presence in Area XYZ. 2. Conduct airborne patrol in Area XYZ. 3. Board vessels on direction from embarked senior Fisheries Officer.

- **Task** (*descriptive* sense) — term used to identify the precise nature of an operation to be conducted in pursuit of an assigned mission or objective. Examples: 1. Escort Detained Vessels. 2. Transport Personnel. 3. Supply Electric Power.
- **Capability** (*descriptive* sense) — the quantitative and qualitative capacity of a force to pre-plan a mission, generally a function of force structure. Examples: the eight Capability Areas for the CF.
- **Capability** (*operational* sense) — having the power, skills and ability to conduct a particular military or civil activity, mission or task. Examples: 1. Self defence. 2. Area anti-air warfare. 3. Area surveillance.
- **Core Competencies** — (*operational* and *descriptive*) those essential capabilities which are common to any naval force at any time, as required to exercise any of the missions, roles, functions or tasks that might be assigned to it. The differences among the various naval forces of the world will be the degree to which these core competencies (and their constituent components) are required and met, depending upon the needs of the local situation.

The circumstances particular to a state's defence and foreign relations, modified by its economic well-being and dependence upon the sea, will dictate its ability to exercise sea power and will influence the naval strategy that state will choose to employ. (The discrimination amongst navies of the world will be discussed in Part 3, and the circumstances pertinent to Canada will be developed in Part 6.) For the Canadian navy, the basic naval concepts of ***Float* — *Move* — *Fight*** summarise its core competencies. These in turn can be related directly to the Capability Areas as defined for the Canadian Forces (the translation of these naval-specific competencies and their sub-components into the respective CF capability areas will be developed more fully in Part 7):

FIGURE 2
BASIC NAVAL CONCEPTS, CORE COMPETENCIES AND CF CAPABILITY AREAS

BASIC NAVAL CONCEPTS	NAVAL CORE COMPETENCIES	CF CAPABILITY AREAS
FLOAT	• To generate and maintain credible combat forces	• Force Generation • Sustain Forces • Corporate Strategy and Policy
MOVE	• To provide sea-based service support and co-ordination	• Mobility
FIGHT	• To know what is going on in real time and to be able to act with a wide range of force options	• Command • Information and intelligence • Conduct operations • Protect Forces • Corporate Strategy & Policy

THE MARITIME FORCE DEVELOPMENT PROCESS

Canada's military, like those elsewhere in the Western world, has profited in recent years from the adoption of the modern business practices currently in use in the private sector (which, ironically, often have been developed from models conceived by the military). One expression of the corporate decision-making environment illustrates the relationships among mission, vision, values and strategy by posing a series of questions, as described below (and seen in Figure 3):[15]

- **Mission** — speaks to the institution's *raison d'être*. It is a general statement of why it exists: *what is our long-term purpose?*
- **Values** — are also long-term and general in nature, and describe how the institution is to be run. The emphasis is on beliefs and behaviours: *what do we stand for in our everyday behaviour?*
- **Vision** — focuses on the specific features of a desirable future state for the institution, providing a reasonably specific and tangible aim, or destination, for the people in the institution to strive to achieve: *where do we want the institution to be in ten to thirty years?*
- **Strategy** — is the articulation, or the path to realisation, of the vision: how do we intend to *fulfil our mission and vision, while reinforcing our values?*

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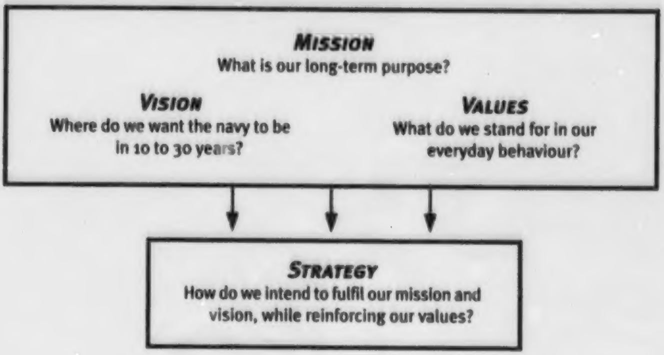
[15] Joseph N. Fry and J. Peter Killing, Strategic Analysis and Action (Scarborough, ON: Prentice Hall [4th ed.]), p. 8.

FIGURE 3

MISSION, VISION, VALUES AND STRATEGY


MISSION
What is our long-term purpose?
VISION
Where do we want the navy to be in 10 to 30 years?
VALUES
What do we stand for in our everyday behaviour?
STRATEGY
How do we intend to fulfil our mission and vision, while reinforcing our values?

The corresponding statements of each as promulgated for the use of Maritime Command will be given in Part 6. In developing a strategy as to how Canada's navy intends to fulfil its mission and vision, while reinforcing its values, into the 21st century, *Leadmark* is based upon a proactive planning methodology, "that the future is not preordained or fixed and that organisations can shape their own future."[16] The naval capabilities required in 2020 may prove to be a modernised version of those now in service or about to be acquired. However, if they are not, *Leadmark* provides the basis upon which the needed step changes can be undertaken with confidence.

It should be noted that, while the purpose of *Leadmark* is to chart the course into the future for Canada's navy, development work is divided into three planning phases, all proceeding concurrently. This gives rise to the concept of Three Navies:[17]

- **The Navy of Today** — is managed in the present and projected out to a period of one to four years (Horizon 1), (the current *Defence Plan [DP]* and *Maritime Capability Planning Guidance [MCPG]* business planning cycle). Development work in this context is concerned primarily with the allocation and management of resources. It is our current navy.

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[16] Goodstein et al, *Applied Strategic Planning*, pp. 45-47, identifies four different approaches to planning for organizations experiencing the need for transformation, noting that the fourth is the most challenging and demanding, but promises the greatest rewards:

1. *reactive*, or planning through the rearview mirror;
2. *inactive*, or "going with the flow";
3. *preactive*, or preparing for the future; and,
4. *proactive*, or designing the future and making it happen.

[17] This developmental model is employed by a number of other services, and these descriptions are drawn from the Canadian army publication, *The Future Security Environment*, p. 1. The United States Navy uses a similar approach, with its "Current Navy," "Programme Navy," and "Navy of Tomorrow". Planning Horizons are described in the yearly *DP*; see *DP 2001*, pp. 4-20.

The Navy of Today — Current Canadian Naval Task Group *(CF Photo)*

- **The Next Navy** — is being designed and built to exist within the window from five to approximately fifteen years (Horizon 2). The Next Navy planning process is concentrated on the development of a program that will realise a modernised navy, within imposed policy and resource constraints. The end date of this period cannot be precisely defined because it is dependent upon many factors, including equipment in- and out-of-service dates, and the introduction of the Navy After Next.
- **The Navy After Next** — will always be conceptual, and will therefore never actually exist. The Navy After Next planning process is concerned with the window beyond the Next Navy time frame, from 10 to 30 years (Horizon 3). This window is beyond current fiscal and policy constraints (although it will obviously be informed by such experience), but it is within the time period when some technological developments can be predicted. The Navy After Next is concentrated on the relatively unconstrained development of a conceptual model of a future navy, including personnel, doctrine and materiel capabilities.

As an integral part of this process, *Leadmark* addresses the needs of the Navy After Next. The documents described earlier in this Part and at Appendix A constitute the framework of references for its production. But *Leadmark* is more than a simple compilation of guiding principles. This strategic-level document is the first in a multi-step Maritime Force Development Process intended to provide conceptual guidance to the Canadian navy in achieving the goals established in *Strategy 2020* and elaborated in the SCP. Building upon the direction provided in those DND/CF documents, *Leadmark* provides the coherent linkages for the rational development of the maritime components of the Long Term Capability Plan (LTCP), consistent with the CF Concept of Employment (COE), the Canadian Joint Task List and the Canadian Maritime Task List. These lists are the tools which establish the range of tasks that the navy (or components thereof) could be called upon to conduct.

Moreover, *Leadmark* is not a stand-alone document. The follow-on development of the operational-level *Maritime Commander's Strategic Capability Planning Guidance* will provide the bridge between the strategic concepts articulated in

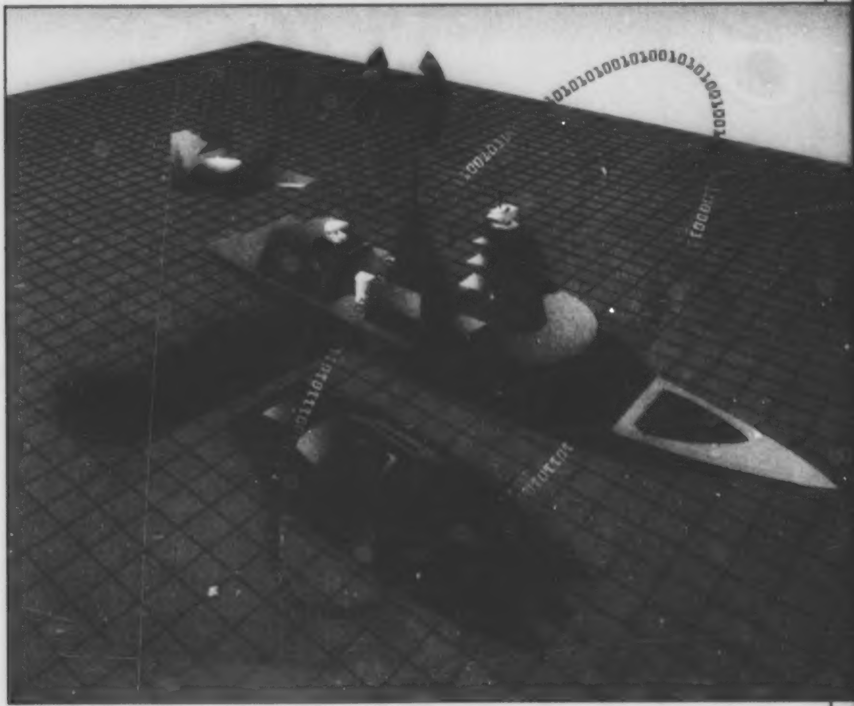
The Next Navy

Leadmark and the tangible instructions for action by force planners. Although the maritime force development process (as well as the CF process) is still being developed, it shall consist of a number of documents, all rooted in the lexicon and tenets of capability based planning, whose purpose is to:

- establish both the type and levels of capabilities required by the Next Navy;
- clearly define the boundaries for each critical capability-platform identified (e.g. the Afloat Logistics and Sealift Capability [ALSC] COE);
- assess where gaps exist between that level of capability sought and that held today;
- forecast technological innovations as well as personnel and training issues that could impact each warfare area over the next decade;
- conduct detailed options analyses as to how to achieve, in a Canadian context, the most effective measure of various capabilities;
- provide Capability Plans that detail the way ahead, and which aim to close capability gaps; and,
- identify the complete range of activities required to implement Capability Plans (inclusive of equipment, personnel and doctrine).

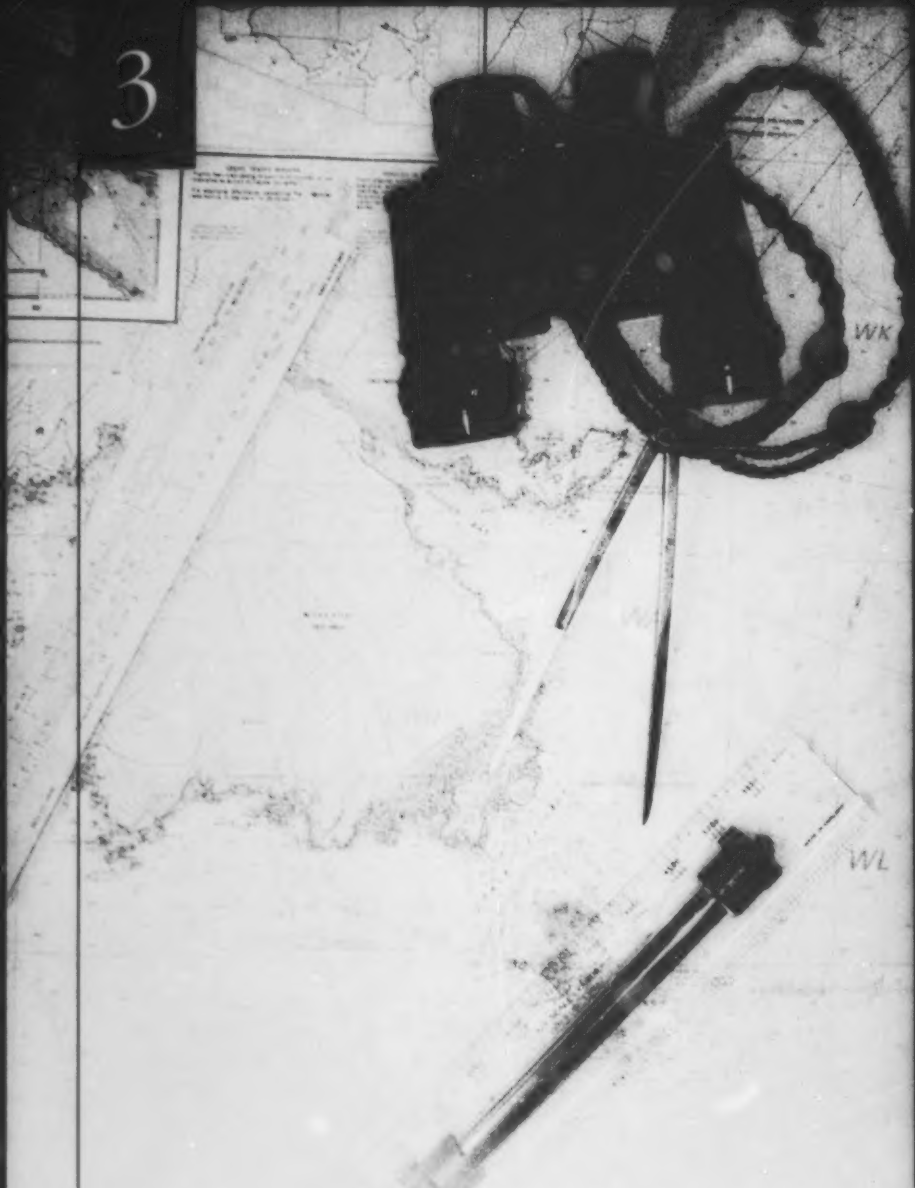
SUMMARY

This part has explained the policies and assumptions that have bound the development of *Leadmark*. Basic naval concepts have been introduced and the elements of a force development process established. The place of *Leadmark* in creating the Navy After Next has been shown. In the next two Parts, the strategic concepts common to Western navies will be described, and their particular application to the employment and operations of the Canadian navy will be seen to have been at work throughout its history. These concepts are alive in the Navy of Today and in planning for the Next Navy. It is entirely reasonable to expect that they will endure into the future.



The Navy After Next

3



GATHERING the Instruments

3

GATHERING

The Instruments

> *Great sea powers or maritime coalitions have either won [or] drawn every major war in modern history. ... There is a historical pattern to [their] repeated success ... that defies dismissal as mere chance....*
>
> *Geography, technology, and tactics have altered radically over the centuries, but the repertoires of strategy options theoretically available to a sea power... has enabled its owners to knit together coalitions with a total strategic weight greatly superior to those secured by dominant continental strength.*
>
> *[Sea] power grants the ability to control the geostrategic terms of engagement in war. Depending on who controls the sea, water is a highway or a barrier....*
>
> Colin S. Gray,
> *The Leverage of Sea Power* (1992)[1]

Canada is a charter member of the coalition of Western maritime nations that fought victoriously for democracy in two world wars and the armed peace of the latter half of the 20th century. Though the global environment of the 21st century may be changing (as will be demonstrated in Part 5), eminent strategic thinkers have demonstrated that there is a proven durability to the winning elements of sea power in affecting that environment. Their various prescriptions, however, generally are based upon the experiences of the great naval powers and thus not all of them are appropriate to the situation of a medium-power such as Canada. Before attempting to describe a Canadian naval strategy for the 21st century, therefore, it is first necessary to understand the elements of successful sea power as they apply to a medium-sized nation.

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[1] Colin S. Gray, *The Leverage of Sea Power: The Strategic Advantage of Navies in War* (Toronto: Maxwell Macmillan Canada, 1992), pp. ix-xii.

Like all manifestations of power, the notions of "medium" and "sea" power are not easy to define. The remainder of this Part is given over to a fuller exploration of these concepts. To begin, however, the following are offered for common reference:

> **Medium power** — is a description of behaviour for a state that tends to participate with responsibility and effectiveness in world events within a partnership of like-minded states. It exists when a number of parameters — economic, cultural, intellectual, military, geographical — all point in the same direction, towards a significant autonomy and capacity for self-help in the preservation of national identity and vital interests. [2]
>
> **Sea power** — is the military power that is brought to bear at sea: on the surface of the sea, underneath it or in the air and space above it. A nation's sea power is determined not only by the weapons and armed forces with which it can affect events at sea but also by its merchant marine, its fishing and oceanographic fleets, and its maritime outlook and tradition.[3]

Based on these definitions, it can be argued that Canada is a medium power, but one with a limited awareness of sea power, even as its latent capacity to exercise it is strong. The realisation of this capacity can come through understanding the answers to two fundamental questions: how can a navy contribute to the exercise of sea power?; and, what are the principles of a medium power naval strategy?

THE ROLES OF NAVIES

> *A navy is a state's main instrument of maritime force. What it should do, what doctrine it holds, what ships it deploys, and how it fights are determined by practical political and military choices in relation to national needs. Choices are made according to the state's goals, perceived threat, maritime opportunity, technological capabilities, practical experience, and, not least, the way in which the state defines itself and its way of war.*
>
> George Baer,
> *One Hundred Years of Sea Power* (1993)[4]

---

[2] Adapted from Peter T. Haydon, *Sea Power and Maritime Strategy in the 21st Century: A "Medium" Power Perspective* (Halifax, NS: Dalhousie University Centre for Foreign Policy Studies, Maritime Security Occasional Paper No 10, 2000), p. 3; and J.R. Hill, Maritime Strategy for Medium Powers (Annapolis, MD: Naval Institute Press, 1986), p. 218.

[3] Adapted from Hedley Bull, "Sea Power and Political Influence," *Power at Sea — 1. The New Environment* (London: International Institute for Strategic Studies, 1976, Adelphi Papers No. 122), p. 1 (quoted in Haydon, Sea Power and Maritime Strategy in the 21st Century, p. 29).

[4] George W. Baer, *One Hundred Years of Sea Power: The US Navy, 1890-1990* (Stanford: Stanford University Press, 1993), p. 1 (quoted in Haydon, *Sea Power and Maritime Strategy in the 21st Century*, p. 36).

This description, made in the introduction to a general history of the United States Navy, applies equally to any naval service, of whatever size. Navies exist as part of a state's general maritime policy. Specifically, they allow the state use of the sea for its own advantage, while at the same time attempting to prevent use of the sea by others to its disadvantage. Contemporary maritime policy is based on the concept of ***freedom of the seas***,[5] which has been codified in international law. Freedom of the seas gives navies the right to operate in all three dimensions — above, below and on the surface — of the high seas. Freedom of the seas gives navies mobility and the capability to deliver force on, over, under and from the sea, anywhere in the world. There are no such corresponding rights over the territory or the territorial seas of another state.

In his definitive work on the roles of navies, Ken Booth conceived **use of the sea** as the unity underlying a trinity of roles — military, diplomatic and policing (see Figure 4) — which inter-relate across the spectrum of conflict (refer to Figure 1). Although conceptualised during the Cold War, his work remains universally accepted as a valid theoretical basis:[6]

- The **military role** appropriately forms the base of the trinity, for the essence of navies is their military character. Actual or latent violence is their purpose. It is a navy's ability to threaten and use force that gives meaning to its other modes of action. It derives its diplomatic impact from perceptions of its military character. Obviously, it derives its utility in conflicts from its ability to exert brute force successfully.
- The **diplomatic role** of navies is concerned with the management of foreign policy short of the actual employment of force. Diplomatic applications support state policy in particular bargaining situations or in the general international intercourse.
- The **constabulary role** is internally as much as externally oriented. These roles are rarely concerned with the armed forces of other states; they are mainly concerned with extending sovereignty over the state's own maritime frontiers.

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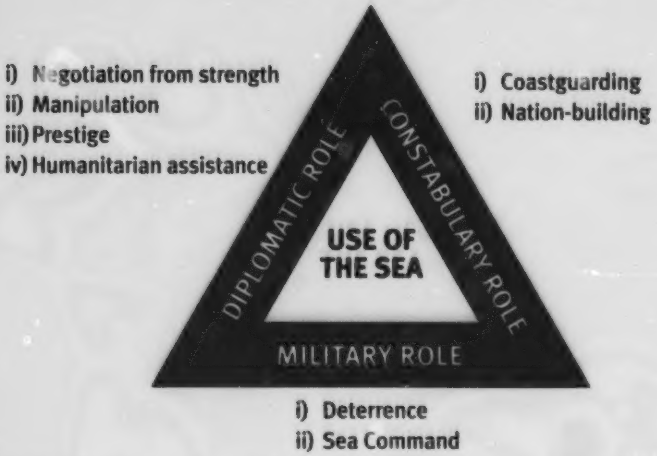
[5] **Freedom of the Seas** — comprises, *inter alia*, freedom of navigation (including submerged transit), freedom of fishing, freedom to lay submarine cables and pipelines, and freedom to fly over the high seas. (*UNCLOS, articles 87 and 90*; see also Glossary)

[6] K. Booth, *Navies and Foreign Policy* (London: Croom Helm, 1977), pp. 15-16ff.

FIGURE 4

THE ROLES OF NAVIES (BOOTH MODEL)


i) Negotiation from strength
ii) Manipulation
iii) Prestige
iv) Humanitarian assistance
i) Coastguarding
ii) Nation-building
DIPLOMATIC ROLE
CONSTABULARY ROLE
USE OF THE SEA
MILITARY ROLE
i) Deterrence
ii) Sea Command

Clearly, there is some inter-relation amongst these three basic roles which offers a degree of synergy not typically found in the other services. In the final analysis, while naval platforms and their crews are designed and trained for war-fighting at sea and in the littorals, they have many wider applications. Navies cannot hold ground to the extent that an army can. Nor can they reach as swiftly to the far corners of the globe as an air force. But the ability of a navy to stand off a foreign shore for an indefinite period with substantial combat capability cannot be matched. Any joint expeditionary concept of operations developed for the Canadian Forces must be undertaken in recognition of the unique attributes offered by each of the services. The navy offers several of direct and immediate applicability. According to one analyst, "the inherent flexibility of naval forces makes them well-suited for a wide range of missions and tasks... in politically-sensitive crisis management situations".[7] In particular, naval forces are endowed with the following strategic characteristics:

- They are unique in their ability to deploy quickly and remain in an area for extended periods without the agreement of neighbouring states and do not need to rely upon complex shore-based in-theatre logistic support systems;

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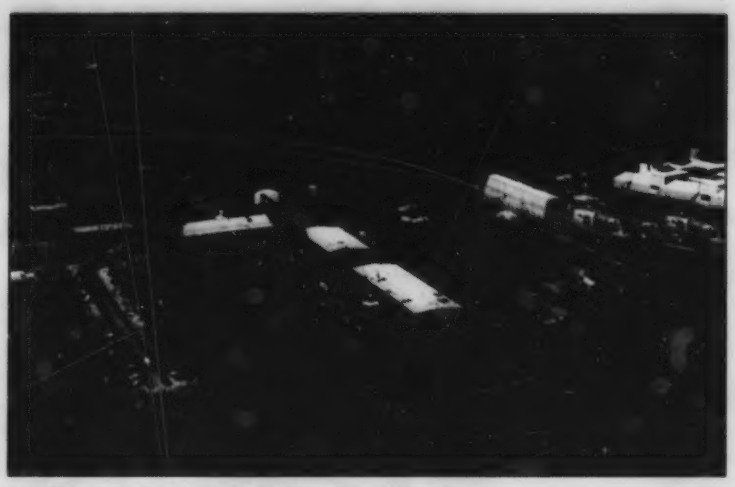
[7] Haydon, *Sea Power and Maritime Strategy in the 21^{st} Century*, pp. 38 and 63, from which the following list of characteristics is adapted.



Standing Naval Force Atlantic (Halifax, NS) *(CF Photo)*

- They have an inherent flexibility which allows them to change roles quickly without loss of efficiency or without having to return home to reconfigure;
- They can extricate themselves relatively easily from threatening situations, but have the capability to function "in harm's way" and protect themselves and those entrusted to their care; and,
- Warships have a symbolic value in that they are legal extensions of their parent state; in this, the presence of a warship is a clear signal of the interest or concern of a state (or of a group of states in the case of a multinational force) about a situation. This unique ability derives from the following attributes of maritime law:
  - High seas — constitute all parts of the sea which are not included in the internal waters or the territorial seas (normally, the twelve-mile limit) of states. Warships of all states have the freedom to navigate or conduct other activities, subject to certain restrictions, on the high seas.[8] As such, there is no equivalent of "overflight permission" (indeed, warships may transit territorial waters in the exercise of "right of innocent passage"), and there are few impediments to sea-basing. Despite the claims of exclusive zones of varying sorts, nearly half of the earth's surface remains under no formal jurisdiction.

- Sovereign immunity (extraterritoriality) — in international law, exemption from local territorial jurisdiction, as accorded to foreign sovereigns, diplomatic representatives, etc., which is recognised as pertaining to warships as well. While neither an embassy nor a warship forms any part of the territory of the foreign state to which it belongs (as is commonly misunderstood), the rule of immunity does mean that none of the ordinary processes of law can be directed against the ship (for example, it cannot be arrested for claims arising out of collision or salvage, and no person from shore may board without the captain's permission).[9]

While the construction of Booth's basic triangle graphically illustrates that the relevance of the diplomatic and constabulary roles is based upon a solid military foundation, navies rarely conduct their everyday functions strictly within one single domain, especially in peacetime. To illustrate the overlap amongst the different roles that occurs in practice, Eric Grove, in his seminal work, *The Future of Seapower*, overlays each side of Booth's triangle with a circle representing a corresponding sphere of activity — respectively, "East-West confrontation" (military role), "national interest" (diplomatic role) and "law and order" (constabulary role). Grove further developed Booth's construct in acknowledging that not all activities involving the *use* of force could be limited to the military role. For example, "the constabulary duties of navies must include some recourse to the actual use of force, albeit limited at all times. This forces one ... into making a distinction between higher and lower level operations, peace and war."[10]

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[8] This definition of *high seas* is from *BR 1806*. For a discussion of "Law [of Armed Conflict] Relating to the Conduct of Hostilities at Sea," see *The Law of Armed Conflict* (Ottawa: NDHQ, Office of the Judge Advocate General [B-GG-005-027/AF-021], [nd, 2000]). Available also at: **www.dnd.ca/jag** Reference also should be made to: James J. Busutti, *Naval Weapons Systems and the Contemporary Law of War* (Oxford: Clarendon Press, 1998).

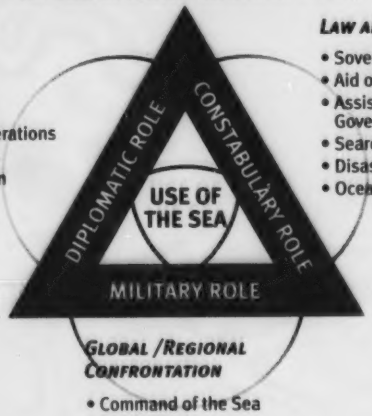
[9] H.A Smith, *The Law and Custom of the Sea* (London: Stevens & Sons, 1950) [previously adopted as BRCN 306], pp. 26-27ff.

[10] Eric Grove, *The Future of Sea Power* (London: Routledge, 1990), pp. 235-236. It should be noted that, although the security environment was beginning to change when Grove formed his model, it is still essentially a Cold War construct. A later refinement of Booth's model was undertaken by Geoffrey Till, "Maritime Strategy and the Twenty-First Century," in G. Till (ed.), *Seapower: Theory and Practice* (London: Frank Cass, 1994), pp. 176-199. Till chose not to utilize the standard triangle, adopting instead a vertical model that better contrasts what he identified as the core naval role (the ability to confront any adversary) against scales of increasing intensity and decreasing frequency. See also, Brooke Smith-Windsor and Richard H. Gimblett, "Canada's Navy After Next: Roles and Functions" (paper presented to "The Canadian Navy in the Post Cold War Era", a conference held at the University of Calgary, March 2001, proceedings publication pending).

The complexity of naval operations at and from the sea can be illustrated by identifying a number of subsidiary activities or *functions* within each circle.[11] At Figure 5, *Leadmark* offers a refinement of the Booth-Grove model, updating it to the post-Cold War era and better illustrating the context within which the trinity of naval roles will be exercised in the early decades of the 21st century. Not only are the overlapping circles (general *roles* or spheres of activity) updated, but also the corresponding subsidiary activities or *functions* are listed to reflect concepts in common usage amongst the major maritime powers. These 21st century functions are defined immediately below.[12] After an exploration (in Part 5) of future socio-economic and military trends, *Leadmark* will refine this model to the more specific case of the Canadian navy of the future (see Figure 6 in Part 6).

FIGURE 5

THE ROLES OF NAVIES (LEADMARK MODEL)



CRISIS MANAGEMENT & NAVAL DIPLOMACY

- Preventive Deployments
- Coercion
- Maritime Interception Operations
- Peace Support operations
- Non-combatant Evacuation Operations
- Civil-Military Cooperation
- Symbolic Use
- Presence
- Humanitarian Assistance
- Confidence Building
- Track Two diplomacy

LAW AND ORDER

- Sovereignty Patrols
- Aid of the Civil Power
- Assistance to Other Government Departments
- Search and Rescue
- Disaster Relief
- Oceans Management

GLOBAL /REGIONAL CONFRONTATION

- Command of the Sea
- Sea Control
- Sea Denial
- Battlespace Dominance
- Fleet in Being
- Maritime Power Projection
- Maritime Manoeuvre

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[11] The term *operational function* is used in the SCP, p. 23 (article 5.4). As discussed in Part 2, the definitions provided in *Leadmark* refer to the *descriptive* sense more that the *operational*. To avoid confusion, the simple word function will be used.

[12] Where appropriate, definitions are taken from Canadian Forces publications and NATO's Glossary of *Terms and Definitions* (AAP 6). However, a number of joint and combined warfare concepts have been more fully developed in other nations, the prime example being the Royal Navy's *BR 1806*, which borrows in part from the doctrine manuals of the US Navy (*US NDP1*) and the UK Joint Warfare Command (*JWP 0-10*), and the Royal Australian Navy's *Australian Maritime Doctrine (RAN Doctrine 1, 2000)*. The development of a distinct Canadian joint doctrine is in progress, as is a complementary manual of Canadian naval doctrine.

MILITARY ROLE — GLOBAL / REGIONAL CONFRONTATION

A presumption that war has been banned under the Charter of the United Nations might be the case in theory, but it is not so in practice. That war continues to be waged must remain a factor in force planning. It would seem that, on the one hand, "war" is a political definition of an act of extreme violence that authorises the state to take action and spend capital beyond the normal constraints of its defence policy. On the other hand, it is a definition of an act or series of acts of extreme violence conducted without due regard to the constraints of international humanitarian law. While the UN Charter effectively bans total war (as experienced in the First and Second World Wars) and aggressive war of territorial expansion (as in the Iraqi invasion of Kuwait), it still allows for individual and collective self-defence and the use of force in an intervention to restore regional stability. In planning the military use of their forces, therefore, political and military leaders must understand the operational concepts associated with the rigorous employment of naval forces. The following are the subsidiary *functions* of the military role:

- **Command of the sea** — the ability to use the sea in its entirety for one's own purposes at any time and to deny its use to the enemy. *(BR 1806)*
- **Sea control** — the condition that exists when one has the freedom of action to use an area of sea for one's own purposes for a period of time in the subsurface, surface and above water environments. *(BR 1806)*

Military Role: ***HMCS Victoria (Royal Navy)***

- **Sea denial** — preventing an adversary from controlling a maritime area without being able to control that area oneself. *(BR 1806)*
- **Battlespace dominance** — the degree of control over the dimensions of the battlespace that enhances friendly freedom of action and denies the enemy freedom of action. It permits power projection [see below] and force sustainment to accomplish the full range of potential missions. *(BR 1806)*
- **Fleet in being** — the use of options provided by the continued existence of one's own fleet to constrain the enemy's options in the use of theirs. *(BR 1806)*
- **Maritime power projection** — The ability to project, sustain and apply effective military force from the sea in order to influence events on land. *(RAN Doctrine 1, 2000)*
- **Maritime manoeuvre** — sometimes referred to as *manoeuvre from the sea*,[13] this is the ability to use the unique access provided by the sea to apply force or influence at a time or place of one's own choosing. *(Leadmark)*

DIPLOMATIC ROLE — CRISIS MANAGEMENT AND NAVAL DIPLOMACY

There are many legitimate applications of limited naval force in support of a nation's foreign policy — that is, in actions short of war. Diplomacy is by definition "the management of international relations,"[14] and modern **crisis management** often calls for the controlled capacity for violence (or threat of violence) resident in the fleet — ranging from the relatively benign notion of influence up to the more rigorous intent of preventive deployments — to achieve government objectives. The long tradition of states employing their navies as diplomatic tools is often pejoratively referred to as "gunboat diplomacy",[15] but modern

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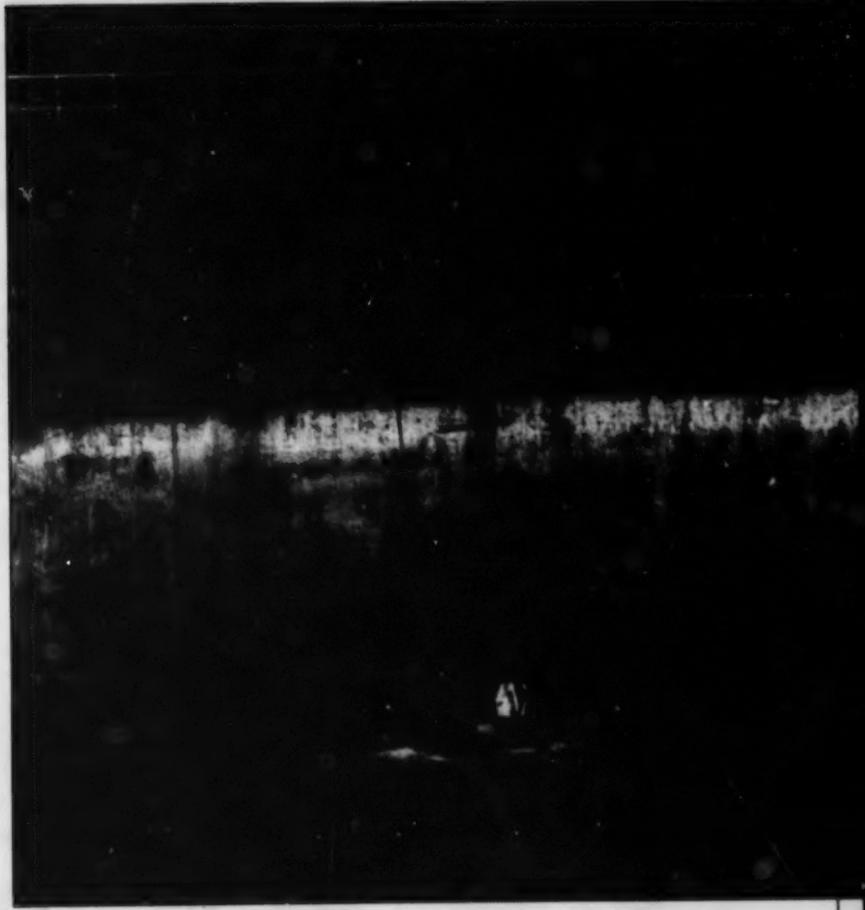
[13] This phrase used in *BR 1806* (1st edition) has been replaced in the 2nd edition by a much longer discussion of the theory of *manoeuvre warfare*. This latter concept is the underpinning of current US military theory, and is presented as an alternative to the former theory, which might be called "attrition warfare". Given its growing prominence in Western military thinking, a definition is provided in the Glossary.

[14] The *Oxford Concise Dictionary* (Oxford: Clarendon Press, 1990), p. 329, as authorized for use of the Canadian Forces.

[15] James Cable, *Gunboat Diplomacy: Political Applications of Limited Naval Force* (London: Macmillan, 1994), p. 14, offers this definition: "the use or threat of limited naval force, otherwise than as an act of war, in order to secure advantage or to avert loss, either in the furtherance of an international dispute or else against foreign nationals within the territory or the jurisdiction of their own state."

[16] This definition from BR *1806* is more complete than that in *DP*; for the latter, see the Glossary. Jason Plotz, "OOTW versus OOTC: Criteria for Decision-Making" (a study prepared for the Directorate of Defence Analysis, 31 March 2000), argues that the term "Operations Other Than Combat (OOTC)" is a better basis than OOTW (see text) on which to base both the theoretical and practical preparation and execution of Canadian Forces missions in the post-Cold War era. This view is not incompatible with the distinction made in the Spectrum of Conflict as used by CF/DND (see figure 1).



Diplomatic Role: Canadian Boarding Party enforcing UN MIO in the Adriatic Sea — 1995
(Cdr C Gunn)

usage in managing the response to crises covers a far broader range of activity. A better descriptor is **naval diplomacy**: "the use of naval force in support of diplomacy to support, persuade, deter or compel" *(BR 1806)*. Another construct for understanding the application of limited naval force in an international context in situations short of open conflict is the notion of **Operations Other than War (OOTW)**. During such operations, military activities are likely to be firmly subordinated to the political exigencies of the situation throughout, and will be designed to prevent conflict, restore peace by resolving or terminating conflict before escalation to war, or assist with the rebuilding of peace after conflict or war."[illegible]

If indeed "war is merely the continuation of policy by other means,"[17] it follows that the tools of war are ultimately for political ends, and significant gains can be derived from the marriage between naval assets and political objectives. In the evolving security environment of the 21st century, the lines between OOTW, the traditional notion of **naval diplomacy** and the overarching concept of **crisis management** are increasingly indistinct. Yet all of these are increasingly important dimensions of the types of operations that will involve the Canadian Forces. For ease of understanding, *Leadmark* collects the various *functions* under the broad categories of Crisis Management and Naval Diplomacy, as listed below:

- **Preventive deployments** — deployment of forces to contribute to preventing the development of a specific crisis or conflict generally. *(MS/MCP 1)*
- **Coercion** — the use of force, or the threat of force to persuade an opponent to adopt a certain pattern of behaviour against their wishes. *(BR 1806)*
- **Maritime Interdiction Operations (MIO)** — the surveillance, interception and, if necessary, boarding of commercial vessels to verify, re-direct or impound their cargoes in support of the enforcement of economic sanctions. *(Leadmark)*
- **Peace Support Operations (PSO)** — A generic term, describing operations designed not to defeat an aggressor, as in the case of war, but rather to assist diplomatic and humanitarian activities to achieve a long-term political settlement. The five forms of peace support operations include preventive diplomacy, peacemaking, peacekeeping, peace-enforcement and post-conflict peace building. *(DP 2001)*
- **Non-combatant Evacuation Operations (NEO)** — an operation to relocate to a place of safety non-combatants threatened in a foreign country. *(BR 1806)*
- **Civil Military Cooperation (CIMIC)** — All action and measures undertaken by a military commander which concern the relationship between a military force and the government, civil agencies or civilian population in the areas where the military force is stationed or employed. *(B-GG-005-004/AF-000)*
- **Symbolic use** — a form of naval diplomacy in which naval forces can be used purely to signal a message to a specific government, while not in themselves posing any threat to an opponent or providing significant assistance to a friend. *(BR 1806)*

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[17] Carl von Clausewitz, *On War* [edited and translated by Michael Howard and Peter Paret] (Princeton, NJ: Princeton University Press, 1989), p. 87.

- **Presence** — the exercise of naval diplomacy in a general way involving deployments, port visits, exercising and routine operating in areas of interest to declare interest, reassure friends and allies, and to deter. *(BR 1806)*
- **Humanitarian Assistance** — activities conducted by military forces, mostly in urgent circumstances, to relieve human suffering, especially when local or governmental authorities are unable, or possibly unwilling, to provide adequate aid to the population. Humanitarian aid can take the form of protection against epidemics, provision of food aid, medical aid or assistance in public health efforts such as re-establishing essential infrastructures, with or without the consent of the State, if sanctioned by a UN resolution. *(DP 2001)*

Humanitarian Assistance — Refugee supplies, delivered by helicopter from *HMCS Protecteur*, are loaded into a truck by Canadian sailors and local Townspeople — East Timor 1999 *(CF Photo)*

- **Confidence Building Measures (CBM)** — steps taken by past, present or potential adversaries to create a positive change in their security relationship by establishing trust and reducing the risks inherent in misunderstanding or miscalculation. Examples include agreements to prevent incidents at sea, such as the

US-USSR agreement of 1972 (eventually followed by a separate Canada-USSR agreement of 1989), prior notification of major military activities, inviting observers to witness exercises and, ultimately, active cooperation.[18] *(Leadmark)*

- **Track Two Diplomacy** — interaction among people from adversarial groups or nations, intended to explore issues and solutions on an informal and unofficial basis. Typically, this takes the form of academic conferences in which, for example, military officers, government officials and academics participate as private individuals rather than as official representatives.[19] *(Leadmark)*

CONSTABULARY ROLE — LAW AND ORDER

Although most countries with a seacoast have established some sort of separate coast guard, many of these services (such as the Canadian Coast Guard) are not armed or equipped to enforce fully the statues of law. They must occasionally turn to their navies for support for certain constabulary purposes or *functions:*

- **Sovereignty patrols** — a specific form of *presence* [see above, under Diplomatic Role] undertaken within a state's area of maritime jurisdiction, in support of nation building, to reinforce claims in contested waters, or otherwise "to show the flag" in a domestic context. *(Leadmark)*
- **Aid of the Civil Power** — Canadian Forces assistance provided at the request of an Attorney General of a Province or Territory in any case in which a riot or disturbance of the peace occurs or is considered likely to occur and which is beyond the powers of civil authorities to suppress. *(DP 2001)*
- **Assistance to Other Government Departments (OGDs)** — assisting Other Government Departments and other levels of Government, to enforce Canadian national sovereignty and interest claims, and to conduct domestic operations, in areas such as fisheries protection, drug interdiction and environmental protection. *(DP 2001)*

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[18] See David N. Griffiths, "Confidence Building at Sea," in Ann Griffiths, Peter Haydon and Richard Gimblett (eds.), *Canadian Gunboat Diplomacy: The Canadian Navy and Foreign Policy* (Halifax, NS: Dalhousie University Centre for Foreign Policy Studies, 2000), pp. 313-334. Incidents at sea agreements (INCSEA) are perhaps the best example of a contemporary maritime CBM. The US-USSR INCSEA of 1972 was the first such navy-to-navy agreement, but many variants are in use or being negotiated worldwide today.

[19] Adapted from Joseph V. Montville, "The Arrow and the Olive Branch: A Case for Track Two Diplomacy," in John W. McDonald and Diane B. Bendahmane (eds.) *Conflict Resolution: Track Two Diplomacy* (US Department of State, 1987), p. 7. See David N. Griffiths, "Confidence Building at Sea".

- **Search and Rescue (SAR)** — the use of aircraft, surface craft, submarines, specialised rescue teams and equipment to search for and rescue personnel in distress on land or at sea. *(AAP-6)*
- **Disaster Relief** — activities undertaken by military forces, in cooperation with civil authorities, to provide aid in the wake of a natural or human-induced disaster within Canadian territory such as a flood, forest fire, chemical spill or nuclear accident. *(Adjusting Course)*
- **Oceans Management** — the broader regimen of inter-departmental and inter-agency measures, official and otherwise, undertaken within both domestic and international contexts, with the aim of ensuring the regulation of activities on, under and above the sea. *(Leadmark)*

Constabulary Role — Canadian boarding party seizing the merchant vessel *GTS Katie* (CF Photo)

APPROACHES TO NAVAL STRATEGY

Originally applied uniquely to the art of war, more recently the concept of *strategy* also has acquired the sense of a corporate plan of action, as seen in Part 2. Each meaning can inform the other, and in providing the further elaboration of a naval strategy for Canada, *Leadmark* integrates the more conventional sense of the word. General government direction unfolds at the **grand** or **national strategic level**, "where the nature and quantity of a country's resources dedicated to achieving objectives critical to the national security interest is determined by the political leadership of the country."[20] **Military strategy**, it follows, is that component of national strategy "concerned with determining the military strategic objectives and desired end state, outlining military action needed, allocating resources and applying constraints directed by political leaders."[21] This leads to a more specific definition of the maritime concept:

- **Naval strategy** — seeks to define how the naval service undertakes its politically directed mandate. Not only must it be the basic

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[20] *SCP*, p. 28.

[21] *SCP*, p. 28.

> plan for the development, maintenance and general employment of the fleet, it must also explain the reason why a fleet of that type is needed. It is primarily about the use of naval forces to implement state domestic and foreign policies.[22]

The strategic culture within which the Canadian navy operates owes much to that inherited from the Royal Navy (RN) and shared with the United States Navy (USN). It was a full century ago that the first attempts to codify the winning traditions of these great Anglo-American navies were made by the famous prophets of sea power: the American naval officer, Alfred Thayer Mahan (1840-1914),[23] and the British historian, Sir Julian Corbett (1854-1923).[24] Much confusion has arisen from attempts to simplify their somewhat complex theorems, but with this risk acknowledged it suffices for the purposes of *Leadmark* to summarise their respective positions:

- **Mahan** "advocated nothing less than command of the sea as the proper object of naval power, which was to be gained by the 'offensive action' of a 'preponderating fleet'."[25] Although Mahan has been styled as "the Clausewitz[26] of naval strategy", his theories are more closely derived from those of the 19th century military philosopher, Jomini.[27]
- **Corbett** more properly should be recognised as "the Clausewitz of naval strategy". He was not so categorical as Mahan (and Jomini) in his views, emphasising the necessary interaction and interdependence of sea and land operations ("it is almost impossible that a war can be decided by naval action alone"). He allowed also that command of the sea need only be local and temporary, sufficient for the conduct of operations.[28]

While proponents of both schools have long argued the superiority of their positions, in truth, elements of each can be seen at play over the course of the past century. Many of their respective strategic insights remain valid today and each has enjoyed a revival of late,[29] even as the debate has been rendered moot. With no peer competitor to the United States Navy's command of the sea in sight, the potential contest for the littorals means that the present and foreseeable conditions most clearly parallel those described by Corbett.[30] More contemporary attempts have been made to update naval strategic thought. Of these, the work of Colin Gray (cited at the opening of this part) essentially continues the study of naval strategy as practised by the great powers, while other authors have begun to identify possibilities for its application by "lesser" powers.[31] Canadians, too, have contributed their share to the recording and development of maritime strategic thought.[32] More than ever, the emphasis of these more recent works has focused on the importance of coalitions of nations working together for the common good.[33]

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[22] Abridged from Haydon, Sea Power and Maritime Strategy in the 21st Century, p. 32.

[23] John Hattendorf (ed.), *Mahan on Naval Strategy: Selected Excerpts from the Writings of Rear Admiral Alfred Thayer Mahan USN with a Commentary* (Annapolis, MD: Naval Institute Press, 1991).

[24] Sir Julian Corbett, *Some Principles of Maritime Strategy: With an Introduction and Notes by Eric J. Grove* (Annapolis, MD: Naval Institute Press, 1988).

[25] John Keegan and Andrew Wheatcroft (eds.) *Who's Who in Military History: From 1453 to the Present Day* (London: Routledge, 1996), p.181.

[26] Karl Maria von Clausewitz (1780-1831), philosopher of war, fought for Prussia against Napoleon. Famous for depicting war as the continuation of state policy "by other means," and for delineating the principles of warfare.

[27] Baron Antoine Henri Jomini (1779-1869), Swiss military theorist and general, fought under Napoleon. He believed that "the secret of Napoleon" consisted of: the correct choice of a "line of operations" that would allow a campaigning general to dominate the theatre of war; the importance of the strategic initiative; surprise; and the concentration of force against a single weak point. [Routledge Who's Who, pp. 147-48.]

[28] Grove, "Introduction" to Corbett, *Some Principles*, p. xxvff.

A TYPOLOGY FOR NAVIES[34]

The difficulty in defining "medium power" is reflected in attempts to categorise a "medium power navy", especially since the two terms are not necessarily related. There are modern parallels to the various historical examples of "great" continental powers choosing to employ only a limited navy (the 17th century Qing Dynasty), and of "lesser" land powers exerting disproportionate influence because of the vitality of their navy (the Dutch Republic, also of the 17th century).

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[29] James Goldrick and John B. Hattendorf (eds.), *Mahan is Not Enough: The Proceedings of a Conference on the Works of Sir Julian Corbett and Admiral Sir Herbert Richmond* (Newport, RI: Naval War College Press, 1993); and Jon Tetsuro Sumida, *Inventing Grand Strategy and Teaching Command: The Classic Works of Alfred Thayer Mahan Reconsidered* (Baltimore, MD: The Johns Hopkins University Press, 1997).

[30] LCdr I.C.D. Moffat, "Corbett: A Man Before His Time," *in Journal of Military and Strategic Studies: The Electronic Journal of the Centre for Military and Strategic Studies* (Winter 2000 / Spring 2001), at **http://www.stratnet.ucalgary.ca/journal/article2.html.**

[31] See especially: Hill, *Maritime Strategy for Medium Powers; and Michael Pugh (ed.), Maritime Security and Peacekeeping: A Framework for United Nations Operations* (Manchester: University Press, 1994).

[32] Historians Donald Schurman and Barry Hunt of the Royal Military College of Canada charted the progress of the British and American prophets of sea power in, respectively, *The Education of a Navy: The Development of British Strategic Naval Thought, 1867-1914* (London: Cassell, 1965) and *Sailor-Scholar: Admiral Sir Herbert Richmond, 1871-1946* (Waterloo, ON: Wilfrid Laurier University Press, 1982). Early in his professional career, Colin Gray conducted a study of *Canada's Maritime Forces* (Toronto: Canadian Institute of International Affairs, Wellesley Paper No 1, 1973). After retirement from active service, Rear-Admiral Fred Crickard has pursued a second career in the development of a multi-disciplinary, inter-departmental Canadian Oceans policy; see Fred W. Crickard and Glen J. Herbert (eds.), *Canada's Oceans Strategies Project — The Atlantic. Final Report* (Halifax, NS: Dalhousie University Centre for Foreign Policy Studies, 1997) (although titularly specific to the east coast, this report contains much material relevant to Canada's ocean areas in general). Another retired naval officer, Peter Haydon, has culminated years of study of the nature of maritime strategy with the recent publication of the definitive, *Sea Power and Maritime Strategy: A "Medium" Power Perspective.*

[33] Peter Hore (ed.), with a Forward by Eric Grove, *The Genesis of Naval Thinking Since the End of the Cold War* (Maritime Strategic Studies Institute [MSSI] Paper No 2) (London: HMSO, 1999).

[34] This section is developed from a model described in Eric Grove, *The Future of Sea Power*, pp. 236-240. He, in turn, built upon previous works by other authors, notably M.A. Morris, *Expansion of Third World Navies* (London: Macmillan, 1987).

Similarly, because each state defines its naval requirements in its own terms, any attempt at ranking involves a complex matrix of circumstances particular to a state's defence and foreign relations, modified by its economic well-being and dependence upon the sea, all qualified by some assessment of actual operational capabilities. Moreover, a simple quantitative ranking based on absolute aggregate numbers of hulls must be tempered by some qualitative analysis as to how the fleets are employed. It has been further suggested that the distinction between rankings is a function of the ability to act independently across the spectrum of naval roles and functions, and at some range from home waters ("out of area" operations).[35] Therefore, while a comparative ranking of navies in terms of their overall power and capability offers a benchmark for discussion purposes, it must not be taken as an absolute.

For all of these reasons, some caveats to the listing below are necessary. The examples given are for illustrative purposes only. They are not meant to be comprehensive, but rather to illustrate Canada's "place" in relation to other states. It is recognised that individual circumstances may change over time to move a navy up or down in the ranking. Moreover, the distinguishing criterion for the purposes of *Leadmark* is not simply to rank on the basis of inherent power, but to reflect the differences among states in the political will to employ their fleets in a particular fashion.

Rank 1: Major Global Force Projection Navy (Complete) — This is a navy capable of carrying out all the military roles of naval forces on a global scale. It possesses the full range of carrier and amphibious capabilities, sea control forces, and nuclear attack and ballistic missile submarines, and all in sufficient numbers to undertake major operations independently. E.g., United States.

Rank 2: Major Global Force Projection Navy (Partial) — These are navies that possess most if not all of the force projection capabilities of a "complete" global navy, but only in sufficient numbers to undertake one major "out of area" operation. E.g., Britain, France.

Rank 3: Medium Global Force Projection Navy — These are navies that may not possess the full range of capabilities, but have a credible capacity in certain of them and consistently demonstrate a determination to exercise them at some distance from home waters, in cooperation with other Force Projection Navies. E.g., Canada, Netherlands, Australia.

Rank 4: Medium Regional Force Projection Navy — These are navies possessing the ability to project force into the adjoining ocean basin. While they may

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[35] Haydon, *Sea Power and Maritime Strategy in the 21st Century*, pp. 75-81 offers this alternative typology.

American aircraft carrier, guided missile cruiser and nuclear powered submarine *(US Navy)*

have the capacity to exercise these further afield, for whatever reason, they do not do so on a regular basis.

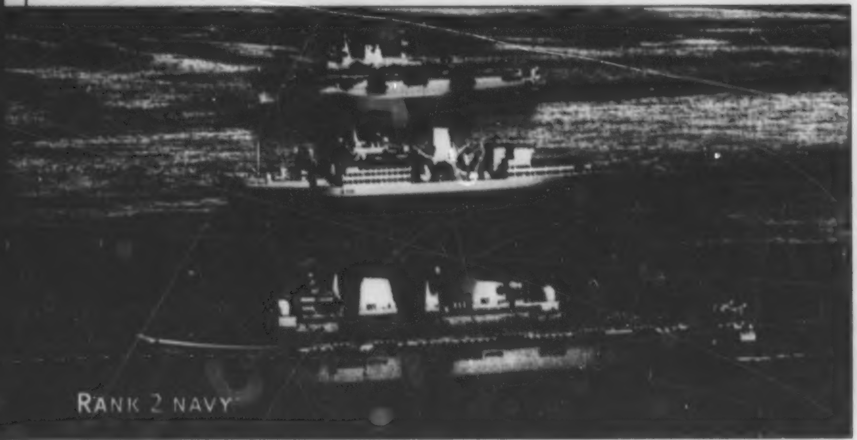
Rank 5: Adjacent Force Projection Navies — These are navies that have some ability to project force well offshore, but are not capable of carrying out high-level naval operations over oceanic distances.

Rank 6: Offshore Territorial Defence Navies — These are navies that have relatively high levels of capability in defensive (and constabulary) operations up to about 200 miles from their shores, having the sustainability offered by frigate or large corvette vessels and (or) a capable submarine force.

Rank 7: Inshore Territorial Defence Navies — These are navies that have primarily inshore territorial defence capabilities, making them capable of coastal combat rather than constabulary duties alone. This implies a force comprising missile-armed fast-attack craft, short-range aviation and a limited submarine force.

Rank 8: Constabulary Navies — These are significant fleets that are not intended to fight, but to act purely in a constabulary role.

Rank 9: Token Navies — These are navies that have some minimal capability, but this often consists of little more than a formal organisational structure and a few coastal craft. These states, the world's smallest and weakest, cannot aspire to anything but the most limited constabulary functions.



British aircraft carrier, supply ship, and helicopter assault ship. *(Royal Navy)*

SOME PRINCIPLES OF MEDIUM POWER NAVAL STRATEGY

The placement of Canada in Rank 3 as a Medium Global Force Projection Navy is neither arbitrary nor inconsistent with the station Canada holds in the world. As will be developed in succeeding Parts of *Leadmark*, this relatively high ranking stems directly from the capabilities resident in the Canadian navy and the demonstrated willingness of the Canadian government to deploy it abroad. In the meantime, this begs further discussion of just how it might be used to best advantage. For all of the general theory on the notions of medium power and sea power, there is no single prescription of ***the*** naval strategy for a medium power. The myriad variables of geography, political structure, national will, values, economic capacity and even the passage of time would preclude such a dictum. It is possible, nonetheless, to distinguish some of the fundamental principles that should guide the development of a specific strategy for the period of 2020 and beyond. These include, but are not limited to, the following:[36]

- **Influence events at a distance** — the essence of sea power is that the direct threat of danger to the continental homeland and the immediate offshore areas is removed, or at least mitigated, by the ability to influence events far from home. Should that fail, or in the event that it is not possible, the ability to influence events decisively in home waters constitutes the outer line in a layered close-in national defence.

- **Freedom of the seas** — the context within which maritime forces operate is distinctively international, in that exploitation of the seas can only sensibly be managed through the cooperative efforts of ocean users.[37] Free passage upon the seas is fundamental to the system of trade that drives the global economy, and to those states that have a communal interest in continuing to provide, in the words of the Naval Prayer, "a security for such as pass on the seas upon their lawful occasions."[38]
- **Joint Enabler** — while the exercise of sea power has tended to grant its users the ability to control the geostrategic terms of engagement in war, eventual stability in most conflicts (which tend to occur on land) can only be achieved by army units on the ground.[39] The navy, however, can play a critical part in getting the army there and in sustaining it with logistical and fire support. "The ability to project superior military power by sea is an essential component of modern diplomacy."[40]
- **Wide range of operations** — a state's global interests in the maritime environment will continue to be served best by remaining fully capable of conducting sea control and sea denial operations in home waters, exploiting a broad range of crisis management and naval diplomacy opportunities, and cooperating in power projection operations on a limited scale.
- **Versatile and combat capable** — it follows that states which have invested in versatile, combat-capable maritime forces will continue to find that those forces provide the best means to respond to crises where and when necessary. While naval forces structured to undertake mid-level combat operations have the capability to perform the constabulary role, the reverse does not hold. A broad base of capabilities is the surest guarantee of a flexible response, of independence of action in a crisis, and of managing the response to that crisis.

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[36] This tabulation is developed in part from Haydon, *Sea Power and Maritime Strategy in the 21st Century*, "Summary and Conclusions," pp. 119-128, and Hill, *Maritime Strategy for Medium Powers*, "Towards a General Theory," pp. 218-227.

[37] Pugh, *Maritime Security and Peacekeeping*, p. 1.

[38] *A Manual of Customs and Traditions for the Canadian Navy* (Halifax, NS: Minister of Supply & Services, 1981), art. 5.05.

[39] In observing that sea power invariably is an "enabling" rather than a "war-concluding" agent, Colin S. Gray has styled it, "Sea Power: The Great Enabler" (*Naval War College Review*, Winter 1994, p. 18). This article is an abridgement of this and other themes developed in his The Leverage of Sea Power.

[40] Haydon, *Sea Power and Maritime Strategy in the 21st Century*, pp. 28 and 126.

- **Alliances / Coalitions** — with the downsizing of Western armed forces from Cold War levels, no one state (not even the US) can be pre-dominant in all situations. The necessary weight of forces can only be obtained by working in combination with other states. There are political as well financial costs to be borne from such arrangements, in that a state wishing to have an active say in alliance deliberations will have to make an appropriate contribution of forces. Conversely, meaningful participation by a number of like-minded states serves to temper any move to unilateral action by the more powerful members.
- **Interoperability** — this is the corollary to collective action, in that navies must be able to cooperate both jointly *(joint operations)* with their other national services, and in combination *(combined operations)* with their allies. In this respect, the USN will be the service with which like-minded states are most likely to combine and as such will set the standard. Although interoperability is more than just a question of technology (organisation and doctrine also are factors), it will be the major concern to potential partners. The question will be how much to acquire, depending upon fiscal ability, so as to ensure interoperability with the USN at a specific force level.
- **Indigenous Capacity** — the more successful of the world's navies are distinguished by elevated and sustained commitments of departmental and national resources, in all of their human, materiel and political dimensions. The broad range and the level of support involved serves to assure the capacity for independent action when allies cannot assist (such as in cases of national sovereignty, where such assistance would be inappropriate), as well as guarantee the fullness, immediacy and effectiveness of the naval response.

CONCLUSION

These principles are entirely consistent with those underlying the strategic capability planning process for the Canadian Forces, the major elements of which were articulated in Part 2. It thus is logical to conclude that a medium power naval strategy is an appropriate path for Canada to follow into the 21st century. And as identified in higher-level guidance, the overriding principle must be the recognition of the joint and combined natures of the future military environment:

> *For strategy must be a whole, and the maritime side of it must serve the whole and not unduly distort it.... That said, the medium power cannot neglect the preservation of its interests at sea nor the chance of safeguarding and promoting its more general interest by sea.*
>
> Rear-Admiral J.R. Hill,
> *Maritime Strategy for Medium Powers* (1986) [41]

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[41] Hill, *Maritime Strategy for Medium Powers*, pp. 218-219.

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4

STERNMARK *to 2020*

THE CANADIAN NAVY, THE FIRST HUNDRED YEARS

> *To study strategy in history, one must be alert to different times, different outlooks, different ideas, different problems, different mind-sets, different capabilities, different decision-making structures, and different technologies. All of these dissimilarities show us that the past is often not a precise model to follow. Despite the contrasts between past and present, however, one can perceive some broad, recurring characteristics, issues, and problems that arise for maritime strategists in the range of action and role: that they consider. From these, one can outline a broad concept of maritime strategy....*
>
> John B. Hattendorf, "What is Strategy?"[1]

The analysis of the history of the Canadian navy undertaken in *Adjusting Course* identified an underlying tension in Canadian defence issues, between a strong desire to focus solely on local defence and the necessity to contribute to collective defence.[2] More recently, military historian Desmond Morton stylised the dynamic as a result of Canada being both "a provider and a consumer of security".[3] To these must be added the observation that the development of the navy over the past century has closely paralleled the evolution of Canadian foreign policy, from the necessities of nation building, through the maturing influences of alliances and peacekeeping, to the altruism of the human security initiative.[4] While all of these factors have shaped the Navy of Today, in tracing the continuum into the future, it is instructive to note the variety of capabilities that the Canadian navy has been called upon to exercise over the course of its history.

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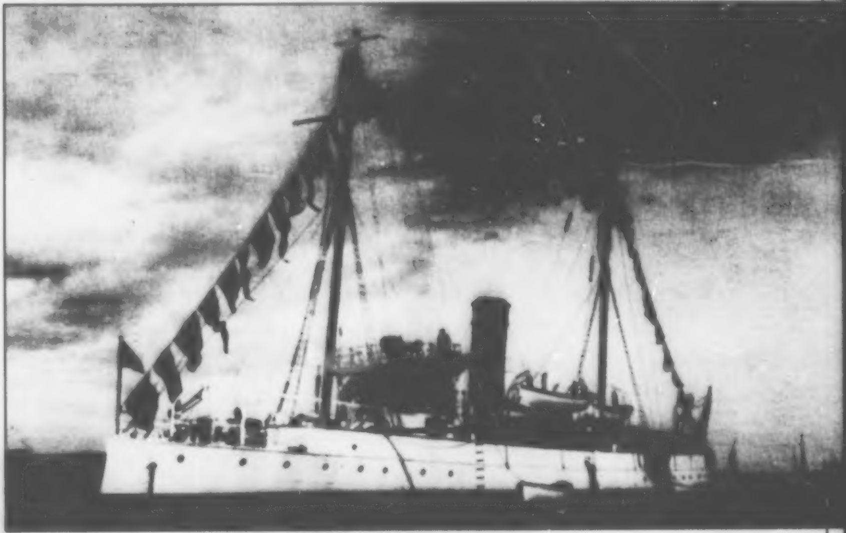
[1] John B. Hattendorf, "What is a Maritime Strategy?", in David Stevens (ed.), *In Search of a Maritime Strategy: The Maritime Element in Australian Defence Planning Since 1901* (Canberra, Aus: Strategic and Defence Studies Centre, 1997), p. 5. Reproduced also in John B. Hattendorf, *Naval History and Maritime Strategy: Collected Essays* (Malabar, FA: Krieger, 2000), pp. 229-240.

[2] Adjusting Course, pp. 3-5.

[3] Desmond Morton, "Providing and Consuming Security in Canada's Century," *Canadian Historical Review*, Vol 81, No 1 (March 2000), pp. 1-28.

[4] LCdr Richard H. Gimblett, "A Century of Canadian Maritime Force Development: A Re-Interpretative History," in Tummers, *Maritime Security Working Papers No 11.*

Part 7 of *Leadmark* will describe the necessary "future" capabilities, but it will be evident from even a brief survey that very few of these are really "new". The Canadian experience as a medium global force projection navy is that the past is a valid sternmark to 2020.[5]



Fisheries Protective Cruiser *Canada* — 1908 *(NAC)*

THE EARLY YEARS

For the first three decades after Confederation, Canada maintained a semi-colonial status. It was the height of the *Pax Britannica*, and successive governments in Ottawa were content to leave external relations to the purview of the Colonial Office. Increasingly, however, Britain's desire to develop good relations with the United States meant that London was not always willing or able to intervene in Canada's more narrow interest. Just as the withdrawal of the British garrisons spurred the establishment of a professional Canadian Militia, fisheries disputes and American intrusions into the Arctic led to the creation of a paramilitary Fisheries Protection Service. Then, at the beginning of the twentieth century, the experience of the Canadian contingents in the South African (Boer) War resulted in calls for militia reform, including proposals to establish a Naval Militia. Even though the Royal Navy was paramount at sea, a viable naval force — acting in concert with the imperial fleet, but available to exercise control in Canadian waters — was accepted as one of the necessary trappings of a sovereign state.

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[5] The official history of the RCN covers only the period 1910-1945 and is seriously dated. The best general accounts are Tony German, *The Sea is at Our Gates: The History of the Canadian Navy* (Toronto: McClelland & Stewart, 1990), and Marc Milner, *Canada's Navy: The First Century* (University of Toronto Press, 1999). See also Gimblett, "A Century of Canadian Maritime Force Development: A Re-Interpretative History", *op. cit.* This summary is drawn from these works unless otherwise noted.

In 1908, Prime Minister Sir Wilfrid Laurier appointed Rear-Admiral Sir Charles Kingsmill, a Canadian with RN experience, to head development of the fledgling naval service. Their proposal for the gradual evolution of the fisheries service into a coast defence fleet enjoyed non-partisan support until the Dreadnought Crisis of 1909, after which the British Admiralty requested the more rapid establishment of Dominion battlecruiser fleet units.[6] By the time the Royal Canadian Navy (RCN) was established on 4 May 1910, the national consensus had evaporated, split over how best to assist the RN in meeting the rising German challenge but without becoming entangled in overseas imperial adventures. Two obsolete British cruisers (one for each coast) were accepted on loan to begin training in conjunction with occasional fisheries patrols and a naval college was established in Halifax. No real progress was achieved, however, because of a continuing political stalemate over what should be the future direction of the naval service.

Both cruisers put to sea in August 1914, the first Canadian units to set out for action upon the outbreak of the First World War. Fortunately, neither encountered their more powerful German foes, and they eventually were relegated to depot ship duties. But no other Canadian warships existed to meet the submarine threat that soon arose in the North Atlantic. In response, the RCN hastily commissioned the vessels and crews of the fisheries service, gradually acquired a collection of converted private yachts, and built a number of anti-submarine trawlers. A pair of submarines purchased by the British Columbia government were transferred to Halifax, but not employed in an operational role. The hard lesson in self-sufficiency was reinforced when the British and Americans had to renege on a promise to provide destroyers to the RCN.[7] In partial redress, the government authorised the establishment of a naval air service a few months before the war ended. Since none of these air or naval forces claimed any enemy submarines to their credit, and with the greater part of the national effort dedicated to the Western Front, the RCN is not remembered as having contributed materially to Canada's Great War effort.

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[6] The Dreadnought Crisis was precipitated in March 1909, when the British Parliament feared that the Imperial German Navy soon would outpace the Royal Navy in the construction of powerful Dreadnought-type battleships. The proposed fleet units were to comprise an Indomitable class battlecruiser (a hybrid ship, with the firepower of a battleship, but less protective armour to allow for the speed of a cruiser), three standard cruisers, six destroyers and three submarines. Besides representing a quantum leap in Canadian naval capability (where essentially none had existed before), another problem with the fleet unit was that the Admiralty proposed it be stationed on the Pacific coast, whereas most Canadian priorities then were on the Atlantic. See Richard Gimblett, "Reassessing the Dreadnought Crisis of 1909 and the Origins of the Royal Canadian Navy," in *The Northern Mariner / Le marin du nord*, vol. IV, no. 1 (January 1994), pp. 35-53.

In the shadow of victory, the Canadian naval staff attempted once again to establish a viable force. A plan presented in 1919 called for the creation of a 46-ship navy, to be constructed over two seven-year building programmes. By the time of completion in 1934, it would have consisted of seven cruisers, twelve destroyers, eighteen anti-submarine patrol craft, six submarines and three tenders. But with conflicting advice from the Admiralty (once again advocating the fleet unit concept), Cabinet used the Washington Naval Conference (which limited naval construction by the great powers) as the excuse to further reduce the Canadian naval budget. In response, the Director of the Naval Service cut the permanent force to 500 officers and ratings, kept only two destroyers and four trawlers in commission as training vessels, closed the naval college, and diverted resources to fund the establishment of the Royal Canadian Naval Volunteer Reserve (RCNVR). Institutional viability was retained through the maintenance of a trained core for future expansion, but immediate operational effectiveness was seriously impaired, and (because any meaningful training had to be conducted in Britain) the development of a Canadian naval identity was delayed.

Over the course of the interwar period, nonetheless, the Canadian government came to appreciate the utility of its naval force. The RCN occasionally was called upon to intervene to protect imperial interests in Latin America and the Caribbean, most infamously when the landing party from a pair of destroyers was instrumental in quelling an insurrection in El Salvador in 1932.[8] Meanwhile, the growing threat of war between the United States and Japan required the modest expansion of the destroyer fleet so that the RCN could mount neutrality patrols on the Pacific coast. With tensions also rising in Europe, politicians were attracted by the prospect that a Canadian fleet would not suffer casualties on the scale of a Western Front war of attrition, and thus the RCN became a focus of Canadian rearmament.[9] In September 1939, the RCN boasted a small but efficient fleet, precisely fulfilling the defence policy of the government. But given its small size — only a half-dozen destroyers and five minesweepers were in service — and doctrinal outlook, the RCN remained little more than a Home Port Division of the Royal Navy.[10]

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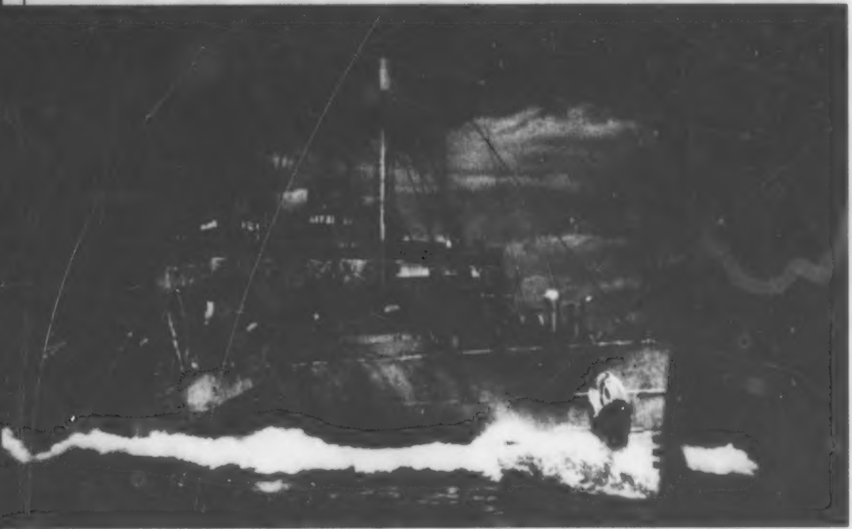
[7] Roger Sarty, *Canada and the Battle of the Atlantic* (Montréal: Art Global, 1998), pp. 22ff.

[8] Serge Durflinger, "In Whose Interests? The Royal Canadian Navy and Naval Diplomacy in El Salvador, 1932," in Griffiths, Haydon and Gimblett, *Canadian Gunboat Diplomacy*, pp. 27-44.

[9] Roger Sarty, "Mr King and the Armed Forces: Rearmament and Mobilization, 1937-1939," *in The Maritime Defence of Canada* (Toronto: Canadian Institute of Strategic Studies, 1997).

[10] The degree of "Britishness" of the RCN remains a subject of some debate amongst Canadian naval historians. See, for example, Michael Whitby, "In Defence of Home Waters: Doctrine and Training in the Canadian Navy During the 1930s," in *The Mariner's Mirror*, vol 77, no 2 (May 1991), pp. 167-177, and LCdr William Glover, "RCN: Royal Colonial Navy or Royal Canadian Navy?," in *A Nation's Navy: In Quest of Canadian Naval Identity* (Montreal & Kingston: McGill-Queen's University Press, 1996), pp. 71-90.



Flower-class corvette — ***HMCS Arrowhead*** — **1940** *(CF Photo)*

THE SECOND WORLD WAR

When the Second World War broke out, the RCN was again the first into action. Indeed, it was the RCN that constituted the mainstay of the Canadian war effort for the first two years. Convoy escort work commenced immediately in September 1939, and from the spring of 1940 RCN destroyers participated in operations off the French coast, including the evacuation from the continent. The "Corvette Navy" of the RCNVR and the Battle of the Atlantic against the German U-boats are justifiably remembered as major accomplishments of the fifty-fold expansion of the RCN (from some 2000 all-ranks to nearly 100,000 by 1945), but that was not near the sum of the navy's accomplishments. In 1941, with the fate of Britain uncertain and the US not yet committed, the possible requirement to defend home waters and the growing competence of the RCN argued for the building of a strong national navy. Therefore, while defeat of the U-boats remained a priority, the Canadian government ordered the concurrent acquisition of cruisers and powerful Tribal class destroyers in addition to the scores of anti-submarine corvettes and other escorts. As well, the naval college was re-opened to ensure the training of officers in Canada. By 1943, allied circumstances had improved considerably, but a new impetus existed for the continuation of a viable Canadian fleet. Recognising the limits of the pre-war policy of isolationism, the Department of External Affairs was developing a commitment to collective security as the basis for the post-war international order. In those days, only a navy could provide military force with global reach and, by 1945, the plans for the post-war RCN envisioned a carrier task force on each coast.

In the meantime, the RCN was putting its growing array of resources to work. In the last two years of the war, over a hundred escorts joined the fight on the Atlantic, most of them new and improved frigates, many of which were commanded by reservists schooled at war. Of significance, the Canadian Northwest Atlantic was established as a separate area of joint RCN-RCAF responsibility, commanded by an RCN admiral — the only major theatre of the war to be commanded by a Canadian. The Tribals were broken in on the Murmansk Run, and later conducted patrols of the English Channel in support of the D-Day landings. Canadian minesweepers helped to clear the approaches to the Normandy beaches, and Canadian landing ships and anti-aircraft cruisers participated in the assaults of the Aleutians, Sicily and Italy, Normandy, Southern France and Greece, and the liberation of Hong Kong. Canadians manned two British escort carriers (the RCN's own light fleet carriers would not be ready until after VJ-Day), and the first of the cruisers joined the British Pacific Fleet, supporting carrier operations and joining in the bombardment of Truk. The RCN ended the war as numerically the third largest fleet in the world, with over 400 combatants of all types (except battleships and submarines), and having operated in most major theatres under all conditions.[11]

Coastal Command Liberator aircraft escorting a convoy — 1943 *(NAC)*

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[11] An appreciation of the range and scope of RCN wartime operations can be gained from Fraser McKee and Robert Darlington, *The Canadian Naval Chronicle, 1939-1945: The Successes and Losses of the Canadian Navy in World War II* (St Catherines, ON: Vanwell, 1996).

THE COLD WAR

Post-war retrenchment threw planning for an orderly transition to a peacetime structure into disarray. As it struggled to maintain a large, balanced and capable fleet, the RCN endured near physical collapse from over-extension. But the navy soon gave the government confirmation that it had in the post-war RCN the elements of precisely the type of naval force that it desired. The creation of the North Atlantic Treaty Organisation (NATO) in April 1949 demanded a military commitment and, with no army or air force units ready for deployment to Europe, the aircraft carrier *Magnificent* was earmarked for the Eastern Atlantic command. Only a year later, in June 1950, when North Korea attacked the South, Canada despatched three destroyers within days. The government again chose that form of representation for the simple reason that, "...of the three services, only the RCN was in a position to provide an active service force for immediate use"[12] — and, one might add, a force that was globally deployable (in the context of allied supply lines). Many observers point to the Korean War as the prototype for future crisis management operations, making the Canadian naval experience there particularly instructive:

HMCS Nootka* conducting Naval Fire Support — Korea, 1951 *(NAC)

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[12] Thor Thorgrimsson and E.C. Russell, *Canadian Naval Operations in Korean Waters, 1950-1955* (Ottawa: King's printer, 1965), p. 3.

> The experience of HMCS *Athabaskan*... during her first of three Korean deployments was typical of this period. In a single patrol she coordinated landings with Republic of Korea (ROK) forces, sent parties of her own ashore, bombarded North Korean positions, illuminated night operations with 'Starshell', intercepted junks and other small craft, destroyed a radio station with demolitions, and gave medical treatment to both ROK military and civilian casualties. The ship's employment was based on its ability to engage shore targets that led, in turn, to involvement in all manner of other tasks in the littoral zone. Other examples include the destruction of the port facilities at Chinnampo, many railroad bridges, and eight of the twenty-eight trains claimed by the famed 'Trainbusters Club'.[13]

Through the 1950s and into the 1960s, the RCN operated a well-balanced, capable and innovative fleet. In Korea, where the RCN maintained a rotation of destroyers for the duration of the war,[14] those ships operated with USN and RN carrier task forces and supported land operations with naval gunfire support. With only one carrier in service, the RCN did not have the depth to field its own task force to the Far East, but *Magnificent* kept up a brisk pace in NATO exercises, with RCN air wings developing a robust mix of anti-submarine and tactical air support capabilities.

The nature of naval warfare changed significantly in the late 1950s and 1960s, with the evolving threat of Soviet nuclear submarines and long-range aviation. To counter the submarines, RCN naval architects undertook the indigenous design of the *St Laurent* class of destroyer escorts, and spearheaded such major maritime warfare innovations as variable depth sonar, the hydrofoil, and the helicopter-carrying destroyer (DDH). As the first Canada-United States (CANUS) naval cooperation agreements were framed, the Naval Board reached the far-sighted decision that all ships, equipment and communications would be compatible with the USN. These all proved of immense value when the Atlantic fleet sortied during the Cuban Missile Crisis in October 1962, in accordance with established plans and procedures, in response to a direct and considerable challenge to continental security. Meanwhile, to provide air cover for the fleet, *Magnificent's* replacement, *Bonaventure*, was commissioned with an angled deck and jet fighters were included in her air wing. To sustain at-sea operations, replenishment ships (AORs — Auxiliary Oiler, Replenishment) were ordered in 1962, incorporating a rudimentary sealift capability (*Magnificent* had been used to deploy Canadian army peacekeeping forces to Suez in 1956, as would *Bonaventure* to Cyprus in 1964). Having secured the services of the Royal Navy's Sixth Submarine Squadron for the provision of training support services in the 1950s, the acquisition of nuclear attack submarines was investigated in the early 1960s (the idea was dismissed due to prohibitive infrastructure costs). Subsequently, *Oberon* class submarines were acquired for service in the Atlantic beginning in 1965, complementing the ex-USN submarines employed on the West Coast from 1961 to 1974. The naval staff also was fully aware in this post-war period of the growing importance of the Arctic to Canadian security. The icebreaker *Labrador*, laid down in 1948, made several voyages through the Arctic, establishing a visible military presence before being transferred to the Department of Transport.

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[13] LCdr Kenneth P. Hansen, "Cease Fire, End Fire Mission Forever? The Canadian Decision to Abandon Naval Fire Support," *Canadian Military Journal / Revue militaire canadienne, Fall 2000* (I: 3), p. 46.

[14] This proved a major strain on the RCN, given the other demands on the destroyer force and the fact that there were only eight of them in service. See Peter T. Haydon, "Canada's Naval Commitment to the Korean War: Prudent Employment or Opportunism?," in Peter T. Haydon and Ann L. Griffiths (eds.), *Canada's Pacific Naval Presence: Purposeful or Peripheral* (Halifax, NS: Dalhousie University Centre for Foreign Policy Studies, 1999), pp. 110-131.

Canadian Task Group — 1968 *(CF Photo)*

With the establishment of a Canadian Maritime Commission in 1947, the government pursued a national maritime policy directed at maintaining a viable merchant marine, a navy to defend it and an industry that could supply ships for both.[15] It was the closest Canada has come to articulating formally a national maritime strategy. As complications in preserving the related naval and industrial policies grew into the 1960s, the policy fell apart and the Maritime Commission was disbanded in 1965. Moreover, even with the steady growth that the RCN enjoyed throughout the 1950s and early 1960s, the expanding capabilities were difficult to sustain. The navy suffered from constant manpower problems, especially in the retention of trained officers and senior ratings, and new projects were consumed by the spiralling costs of production. Although the specific circumstances of the cancellation of the General Purpose Frigate programme (by the newly-elected Liberal government in 1963) were different from the scrapping of the Avro Arrow (the RCAF fighter that was cancelled by the Conservative government in 1959), both were symbolic of political determination to cut the defence budget and "to do things differently".[16] At that same time, the new defence minister ordered all three services to re-evaluate their estimates. Early in 1964, the naval staff proposed a novel fleet model optimised for anti-submarine warfare, but with sufficient flexibility to undertake also the new task of providing support to UN peacekeeping operations. The plan included new multi-role ground attack fighters for the carrier, acquisition of two LPHs (Landing Platform, Helicopter) of the new *Iwo Jima* type under construction for the USN, and three guided missile destroyers (DDGs) for firepower support. Although carefully measured to meet all of the government's criteria, the naval response soon was lost in the acrimony leading up to Unification.[17]

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[15] Michael A. Hennessy, "The Rise and Fall of a Canadian Maritime Policy, 1939-1965: A Study of Industry, Navalism and the State" (University of New Brunswick, unpublished PhD dissertation, 1995), p. ii.

The RCN's future also was being undermined by its own successes to date. Recognition of the Canadian talent for anti-submarine warfare as a unique NATO contribution led to the focussing of limited resources into further development of that specialised tactical capability. The pioneering DDH concept of operating a large helicopter (the newly introduced Sea King) from a little deck was proving to be spectacularly practical, while a carrier without modern aircraft was becoming an increasingly expensive liability. Even as the ships of the *St Laurent* class were converted to the DDH standard to extend their longevity, *Bonaventure* was scrapped in 1970 without replacement. And soon thereafter, a government reassessment of the navy's role — strategic anti-submarine warfare — was finding that to be inherently destabilising. Suddenly the navy was without a political rationale. With the *Iroquois* class destroyers (the DDH 280s) and the *Protecteur* class AORs having just entered service, it is little wonder that the navy was lowest in priority of the Defence Structure Review of the mid-1970s.[18] Although Cabinet approved the purchase of new multipurpose warships in 1977, it would be another dozen years before the first of the Canadian Patrol Frigates (CPFs) would be launched.

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[16] The politics of the cancellation of the GPF were very different from those of the Avro Arrow, but it is not any less complex a piece of history. The only complete telling is Peter T. Haydon, *When Military Plans and Politics Conflict: The Case of Canada's General Purpose Frigate Program* (Canadian Institute of Strategic Studies, McNaughton Paper No. 2/91).

[17] On the Burchell Report of 1964 (not to be confused with the earlier Brock Report of 1962) and other Naval Staff initiatives of the mid-1960s, see Peter Haydon, "Canadian Amphibious Capabilities: Been there, Done it, Got the T-shirt", in *Maritime Affairs* (Winter 2001), pp. 14-19.

[18] Dan Middlemiss and Peter Haydon, "The 1975 Defence Structure Review: The Naval Dimension" (paper prepared for the Military History Conference, Ottawa, May 2000 [publication pending]).

By 1984, a re-organised naval staff in National Defence Headquarters produced a new fleet plan, the *Maritime Force Production Guidance*, emphasising the multi-purpose capabilities of the new frigates and allowing for the modernisation of the command and control and area air defence capabilities of the *Iroquois* class. New patrol vessels for the reserves — the Maritime Coastal Defence Vessels (MCDVs) — also were ordered, but a submarine replacement programme was side-tracked by the controversial proposal to acquire nuclear-powered vessels. That investigation only confirmed the findings of the earlier bid, that whatever their potential to cement the Canadian presence in the Arctic, it was not enough to offset the infrastructure and personnel costs, and the general unpopularity of the idea with the public.

The Canadian fleet, however, was anything but irrelevant through the half-century of the Cold War and its immediate aftermath. One study has identified that, in addition to meeting the alliance obligations to NATO, Canadian naval forces engaged in some 100 operations from 1945 to 2001, covering the spectrum of conflict. A summary (the complete listing is provided at Appendix C, "Canadian Maritime Operations, 1945-2001") reveals the direct application of each of the three basic roles of navies and most of the subsidiary functions identified in Part 3:[19]

- area sea control (the Cuban Missile Crisis of 1962, the Gulf War of 1991)
- maritime power projection (the Korean War, 1950-53)
- naval presence (port visits around the world throughout the period)
- Peace Support Operations (Korea in 1953-55, Vietnam in 1954 and 1973, Central America in 1989-94, Cambodia in 1991-93)
- Non-Combatant Evacuations (numerous instances in the Caribbean basin throughout the period)
- Disaster relief and humanitarian assistance (the various Red River floods, fire fighting assistance, earthquake relief to Chile in 1960, hurricane reconstruction in Florida in 1993, the Swissair crash recovery in 1998)
- sovereignty patrols (Arctic deployments, fisheries patrols and drug interceptions throughout the period)
- Aid of the Civil Power (the Montreal Olympics in 1976, patrol vessels at Oka in 1990)

Moreover, when Iraq invaded Kuwait in August 1990 and Canada found itself going to war yet again, the nation turned once more to the navy to lead the response. None of the new patrol frigates or the modernised *Iroquois* class were ready for operations, but a three-ship task group (*Athabaskan, Terra Nova* and *Protecteur*) and a clutch of Sea Kings were hastily upgraded with equipment "borrowed" from the new programmes. Within two weeks of the call, they set sail for the Persian (Arabian) Gulf. While equipment limitations vis-à-vis other coalition partners meant that the task group could not take a position on the front lines, the unique combination of command and control equipment, personal leadership skills, and national reputation led to the Canadian task group commander exercising a major Coalition naval warfare responsibility, the only non-USN officer to do so.[20]

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[19] Sean M. Maloney, "Canadian Maritime Operations, 1945 to 2001" (unpublished paper prepared for Director of Maritime Strategy, March 2001 [held on file]).

Post Cold War to the Present — The Navy of Today

Much has happened in the decade since the Gulf War. Canada's navy profited from the fact that a variety of new programs were approved before the end of the Cold War led to a constriction of defence budgets worldwide. Yet, this in turn meant that Canada's international stature also benefited. At the outset of the 21st century, Canada had in its service arguably the best balanced and most capable navy in its history. It speaks volumes to the inherent flexibility of naval forces that this essentially Cold War construct proved remarkably adaptable to the new world order.[21] The country has been able to offer a modern fleet with a broad range of capabilities to a number of peace support operations in an era marked by state instability and global uncertainty. It is instructive to examine the constituent parts of the Navy of Today and how it is being employed.

The four destroyers of the *Iroquois* class were upgraded early in the 1990s to modern command and control and area air defence standards (earning the re-designation as DDG — Guided-Missile Destroyer). Ships of this class have served as the flagship of Canadian commodores in command of NATO's Standing Naval Force Atlantic (STANAVFORLANT), including during the Bosnia conflict of 1993-1995 and the Kosovo campaign of 1999,[22] and have led STANAVFORLANT in support of US Drug Enforcement Agency counter-narcotics operations in the Gulf of Mexico.[23]

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[20] Jean Morin and Richard Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf, 1990-1991* (Toronto: Dundurn, 1997), pp. 182ff. See also, Commodore Duncan Miller and Sharon Hobson, *The Persian Excursion: The Canadian Navy in the Gulf War* (Clementsport, NS: Canadian Peacekeeping Press, 1995).

[21] On the continuity of the naval contribution to Canadian foreign policy, see also Griffiths, Haydon and Gimblett, *Canadian Gunboat Diplomacy.*

[22] STANAVFORLANT is unique amongst military organizations anywhere in the world, in its multinational makeup, high standard of operational readiness and longevity. On the earlier experience of operations involving the Former Republic of Yugoslavia, see Sean M. Maloney, *The Hindrance of Military Operations Ashore: Canadian Participation in Operation Sharp Guard, 1993-1996* (Halifax, NS: Dalhousie University Centre for Foreign Policy Studies, Maritime Security Occasional Paper No 7, 2000).

[23] Brooke A. Smith-Windsor, "Human Security: Canada's Role in a Globalizing World," in *The Global Century* (Washington DC: National Defence University, 2001).

The integrated combat system of the *Halifax* class of patrol frigates (CPFs) stands as the envy of other navies. The twelve ships of this class have toured the world as showcases of Canadian technological know-how. Single ships (in rotation) frequently have been integrated seamlessly into USN carrier battle groups deployed to the Persian (Arabian) Gulf in continued enforcement of United Nations resolutions against Iraq.

Victoria class submarines have replaced the *Oberon* class submarines, thus ensuring that Canada maintains a modern submarine capability and balanced fleet structure into the future. The *Oberon* class, originally purchased to address a fleet ASW training support need, had evolved by the mid-1970s into a significant operational capability assigned to support national and NATO commitments. More recently, in addition to their traditional roles, submarines also quite literally have brought a new dimension to such sovereignty activities as fisheries patrols and counter-drug operations, being able to approach violators unobserved. During the "Turbot Crisis" fisheries dispute in 1995, their very existence provided an important "fleet in being" deterrent effect.

The *Protecteur* class replenishment vessels (AORs), always critical to the operational sustainment of Canadian and allied battle fleets, have seen much of that traditional employment in operations in the Persian Gulf, off Haiti, and in the Adriatic Sea. Apart from this, these two ships have become the workhorses of the Canadian fleet.

CH 124 Sea King Maritime Helicopter (MH) *(DGPA)*

CP 140 Aurora Long Range Patrol Aircraft (LRPA) *(CF Photo)*

They have ranged around the globe on missions as diverse as acting as the initial afloat joint headquarters for the Canadian contingent to Somalia in 1993, and providing humanitarian assistance to East Timor in 1999-2000.

The twelve ships of the *Kingston* Class Maritime Coastal Defence Vessels (MCDVs) are designed to embark a variety of mission payloads, most of them for different aspects of mine countermeasures (MCM). These flexible ships also have been employed in the conduct of junior officer training and sovereignty patrol missions, and can lend support to major units of the fleet in operations. In the Swissair disaster recovery operations in 1998, for instance, four *Kingston* Class ships embarked MCM payloads to assist in the search for, identification, and recovery of aircraft debris. Operated by a predominantly Reserve force (supplemented by Regular force personnel), they have served as an excellent example of the Total Force concept.

Maritime air platforms have witnessed a broadening of their employment away from the traditional tasks of anti-submarine warfare and ocean area surveillance. Long-range Aurora patrol aircraft and Sea King maritime helicopters also support national and coalition forces (joint and combined) and Other Government Departments (OGDs), through a wide range of operations that include: sanction enforcement; over-land surveillance; tactical lift; land support operations; peace support operations; counter-drug operations; monitoring of illegal immigration; pollution and environmental control; and Search and Rescue.

In the last decade of the 20th century, the Canadian navy, like the Canadian Forces in general, was more actively engaged in a greater variety of operations throughout the world than at any other period in its peacetime history (see map 5). A review of the navy's post-Cold War employment confirms the value of a balanced approach to defining naval capability requirements. Equally important is the fact that these capabilities now are resident in sufficient numbers in various platforms to allow an equitable distribution between both the Pacific and the Atlantic coasts. For the first time in its history, the Canadian navy is able to maintain a viable task group on each coast. Even if circumstances did not allow the deployment of a naval task group to any of Somalia, the Adriatic or East Timor operations, individual ships did distinguish themselves in each of those cases. Their accomplishments in combining effectively with forces of other nations were directly attributable to the high level of fleet training they had received through participation in task group exercises.[24] As such, the task group concept remains the fundamental precept of the operational employment of the Canadian fleet, the tactical self-sufficiency of individual platforms notwithstanding. Maintaining the navy as a credible and useful force, and extending its reach into the Arctic Ocean, are the underlying objectives guiding the development of the Next Navy.

***HMCS Shawinigan* — Maritime Coastal Defence Vessel (MCDV)** *(CF Photo)*

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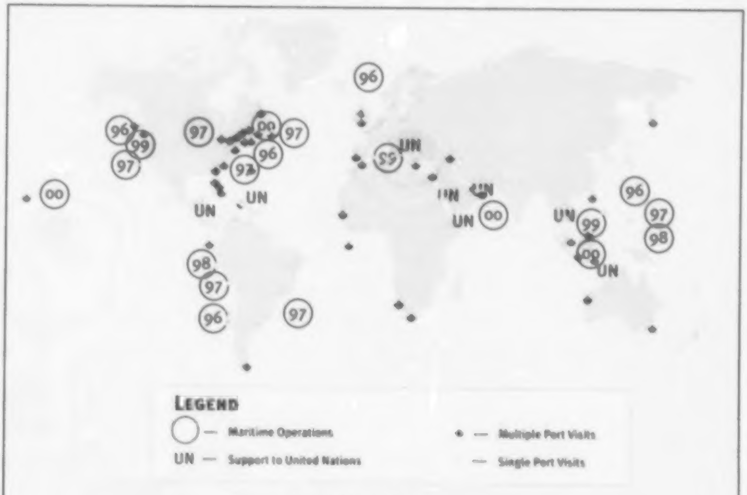
[24] Laura Higgins, "The Canadian Task Group Concept: Future Application from Past Successes?" (paper presented to "The Canadian Navy in the Post Cold War Era", a conference held at the University of Calgary, March 2001, proceedings publication pending).



Recent Visits and Operations

CURRENT DEVELOPMENTS — THE NEXT NAVY

The design of the Next Canadian Navy already is well advanced. Given that its development unfolds within the Horizon 2 (five to fifteen year) planning window, the shape of the Next Navy understandably is informed by the experience of the first decade of the post-Cold War era. It also is based on the principles of capability-based planning, with a particular eye on an enhanced joint focus and allied interoperability.

The navy is responding to a developing requirement for an independent capability to transport Canadian troops and equipment with a project to build a multi-purpose ship. The Afloat Logistics and Sealift Capability (ALSC) project is tasked primarily to ensure that continued at-sea logistics support will be available to naval ships and embarked helicopter detachments. To gain the maximum utility from the ship, it also is intended to include the ability to deliver the lead elements of a Canadian expeditionary force almost anywhere in the world accessible by sea. Other roles, including aviation support, humanitarian crisis response and a joint and (or) combined force headquarters capability, may be accommodated as well.

Recognising the need for a replacement for the air defence and command and control capability resident in the *Iroquois* class destroyers, the navy is developing the Command and Control Area Air Defence Replacement (CADRE) project.

With the trend towards littoral warfare and a mandate for a globally deployable Canadian Forces, the implications for such a replacement extend beyond the traditional area air defence functions of the Cold War. Potentially they could include the ability to handle threats from theatre missiles (ballistic and cruise), kinetic and beam (energy) weapons, and shore-based weapons, and CADRE should be able to provide support to joint and combined forces ashore.

Since the *Halifax* class frigates were delivered in the first half of the 1990s they need to undergo a modernisation programme if they are to retain their operational viability over the projected 30-year lifetime of their hulls. In addition to evaluating the requirements for new command, control, communications, radars, sensors and weapons suites, the Frigate Equipment Life Extension (FELEX) project will also have to examine what work will be necessary with regard to refurbishing and (or) renewing the hull and machinery. It is not certain whether, at the end of FELEX, the Canadian frigate fleet will retain the uniform configuration and suite of capabilities as seen today. Requirements and budgets may see subclasses of upgraded vessels emerge.

Similarly, the *Victoria* class submarines will also require a mid-life upgrade in the near-term as they were originally constructed for the Royal Navy in the 1980s. The Submarine Equipment Life Extension (SELEX) project will need to look at platform upgrades and refurbishment as well as new command, control and communications systems, and perhaps even a new sensor and weapons outfit. However, one of the most exciting possibilities for conventional submarines is that presented by Air Independent Propulsion. The day of the purely diesel-electric submarine is almost over, with most recent new-construction non-nuclear submarines featuring some form of Air Independent Propulsion (AIP). Significantly, one of the over-riding acquisition criteria stipulated for the *Victoria* class was a capability for possible retrofit of an AIP generation system.

Owing to the multi-purpose nature of the construction of the *Kingston* class ships, it is not necessary for major modifications to be carried out when a new weapons system is provided (containers outfitted with new equipment can be attached to three pads on the after part of the ships). The Remote Minehunting System project shows promise and may provide a remote controlled stand-off minehunting capability and may also lead to the possibility of a remote influence minesweeping system as well. Development of this capability in modular form will ensure that it can be migrated to a variety of platforms as required, thus greatly enhancing their capability for self-defence against mines whilst reducing risk to platforms and personnel.

Maritime aircraft capital programmes are managed by Air Command in response to naval operational requirements. Acquisition of a new multi-purpose maritime helicopter to replace the Sea King will permit the navy finally to realise the full potential of the *Halifax* class frigates. The approved update programme of the CP-140 (Aurora) maritime aircraft will replace the communications and data processing systems, upgrade the radars and other non-acoustic sensors, and provide a multi-static active and passive airborne acoustic suite.

Not all naval acquisitions are centred on ships, submarines and aircraft. The High Frequency Surface Wave Radar (HFSWR) project, executed in conjunction with industry, has produced two experimental sites in Newfoundland. This ongoing research and development (R&D) project is examining the potential of surface ducted HF radar energy for longer-range detection of low flying aircraft and ships. If successful, a chain of such stations may well prove to be able to provide surveillance coverage over much of Canada's maritime economic zone on a continuous basis, in a more cost-effective manner than either airborne or space-based sensors. At a much earlier stage in the experimental process is a proposal to develop a rapidly deployable surveillance system to provide a temporary surveillance capability tailored to an individual crisis or situation.

The navy is not just about platforms and high-tech equipment — its very foundation is its people. The Canadian Forces have identified the development of a Human Resources Strategy as its critical issue in the near term. The navy will remain actively engaged in the development of a departmental plan and its implementation within a naval context. Quality of Life and Quality of Work Life must figure prominently in all capability planning regarding the Next Navy. The navy must foster continuing education through distributed learning and education cost reimbursement, and promote such measures as will generate a holistic approach to meeting the career, family and personal needs of its sailors. The character of the Canadian labour market is that of an ever-shrinking workforce pursued by increasingly competitive employers. Positioning the navy as "an employer of choice for Canadians" will be absolutely critical to the ability to recruit and retain officers and sailors with the essential skills and competencies to handle the complexities of our new equipment, and to function effectively in the more complex security environment of the future.

SUMMARY

Over the nearly one hundred years of its existence, in two world wars and in United Nations operations from Korea to the Persian Gulf, the Canadian navy consistently has been the first to answer the Canadian government's call to arms. An operational task group on either coast stands ready to do so today. In peacetime, however, although the navy has provided yeoman service, far too often it has been reduced to a niche capacity. Marginalisation has been averted only by the basic inherent flexibility of medium-sized warships and the innovative action of Canadian officers and sailors. Successive fleet plans — those of 1909, 1919, 1945 and 1964 — failed to materialise, only for events to prove these to be precisely the fleets required. The fleet plan of 1984 is only coming to final fruition some two decades later.

The timing is propitious. The Navy of Today arguably represents the most capable fleet in Canadian history. It may not be the largest ever, nor does it include the widest array of warship types and equipment. Nevertheless, it is the most balanced fleet in terms of capabilities over the whole spectrum of naval warfare, and its level of training matches those capabilities. The inherent flexibility of naval forces has allowed the Canadian navy, designed for open ocean operations, to be employed effectively in a variety of littoral operations at home and abroad. The changing security environment promises a growing number of such operations in the future.

In the *1994 Defence White Paper*, the Government called for multi-purpose, combat-capable armed forces able to meet the challenges to Canada's security both at home and abroad. The Navy of Today answers that call. Still, the present fleet composition owes its shape to a serendipitous turn in the default NDHQ procurement strategy of the past, which produced platforms in search of capabilities to deliver. Designed and procured to meet Cold War needs, this fleet has been extremely relevant — even after the need changed dramatically — due to the flexibility of employment resulting from its being multi-purpose and combat-capable. Although work on the design of the Next Navy has been underway for several years, it is not developing as simple "platform replacements" in search of viable employment. Rather, it is being carefully managed to ensure the delivery of forces that fulfil specific capability requirements. Canada's ***medium global force projection navy*** is doing its duty today and will continue to make a viable contribution to Canadian security in the near and medium terms. The assessment of the future security environment, contained in the next part, will indicate how the Navy After Next can best be positioned to continue that contribution well into the future.

5

CLEARING BEARINGS

5

CLEARING BEARINGS:

The Future Security Environment

With the emphasis in *Strategy 2020* and the specific guidance in *Strategic Capability Planning for the Canadian Forces (SCP)* on capability-based processes and the evolution of a Long Term Capital Plan, a means has been provided to rationalise Canadian force development as envisioned in the *1994 Defence White Paper*. The logic of the *SCP* is the development of a joint expeditionary force structure for the Canadian Forces. The navy, and its maritime air components, will be expected to provide critical elements (capabilities) of that structure. To avoid the misappropriation of scarce defence resources, the future mission, vision, roles and functions of Canada's Navy After Next (to be presented in Part 6), and the capabilities required to fulfil them (identified in Part 7), must be developed on the basis of a reasoned assessment of the place of the Canadian Forces in the future security environment, and of the particular naval challenges this environment is likely to present.

Prior to embarking upon this assessment, it is worthwhile acknowledging the ambitious yet uncertain nature of futures analysis. Consider the common refrain among modern strategic planners that, in 1980, few would have fathomed that two decades later the Soviet Union would no longer exist, and that NATO would have engaged in combat operations in Europe, not against the Warsaw Pact but against Yugoslavia. Or in a naval context that, only a decade later (in 1990), the might of six carrier battle groups would be massed, not off North Cape against the Soviet Union, but in the Persian Gulf against Iraq. It is not difficult to bring to mind other examples of how notoriously unpredictable the course of events can be. With the high stakes of Canadians' peace and security at issue, there is good reason to plan for a future naval force for 2020, able to offer Canadians a measure of insurance against surprise.

Affirming the place of the Canadian Forces in the future security environment is not unlike the process of determining "clearing bearings", whereby the leadmark may be used as a point of reference to provide a zone of safety clear of dangers along the chosen track. In this case, the "dangers" are the various security challenges likely to be encountered in the future, and the anticipated CF mission, structure and force planning framework provides the measure of "safety". The process involves the following steps, which will be explored in this part:

- clarifying the overarching CF mission and force structure called for in *Strategy 2020;*
- exploring the security challenges that the CF will likely face in 2020, and the broad social and economic trends from which they will conceivably stem;
- confirming the relevance to that security environment of the eleven CF force planning scenarios introduced in the *Defence Plan (DP)*; and
- concluding with an assessment of the future maritime security environment that will confront the Navy After Next.

THE CANADIAN FORCES AND THE FUTURE SECURITY AGENDA

Sometimes, to move forward, it is first necessary to take a step back. Such is the case with forecasting the type of armed forces needed to meet Canadians' future security concerns. To project the Canadian Forces required in 2020, it is worth reflecting on Canadians' past and current perceptions of their security. Since 1648, when nation states emerged in Europe as the dominant organising principle for distinguishing communities, security was commonly perceived as "freedom from organised violence caused by armed foreigners."[1] Being free from the threat of foreigners' violence meant being protected from it. National armed forces provided such protection. During the Cold War, this conception of security led the Canadian Forces to optimise their role as protector of Canadian and allied territory against armed aggression by the Soviet-led Warsaw Pact. This did not mean that the Canadian Forces were limited to sovereignty protection operations within the Canadian and NATO theatres. As one analyst suggests, the desire to preserve Canada from the effects of a global confrontation between the two superpowers figured in the country's proud tradition of international peacekeeping. By deploying forces overseas, often one aim was to prevent regional conflicts (such as those in the Middle East) from escalating into a global superpower confrontation that could have seen foreign troops or weapons threatening Canadian and allied shores.[2]

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[1] S. Del Rosso Jr, "The Insecure State: Reflections on 'the State' and 'Security' in a Changing World", *Dædalus*, 124, no. 2, pp. 23-53.

In the 1990s, with the post-1945 superpower rivalry drawing to a close, the traditional notion of security had to be reassessed. Released from the intellectual confines of Cold War brinkmanship, and compelled to define the so-called new world order, governments began to redefine security to include not only military threats to the state, but also military and non-military threats to individuals wherever they may be. Along with the traditional threat of foreigners' armed aggression, the perception arose that international crime, disease, global warming and intra-state ethnic, cultural and religious violence constitute threats from which protection will be sought, both for Canadians and for their fellow human beings. In a Canadian context, the term "human security" regularly describes this revised notion of security.[3] A broadened security agenda signifies not only the ongoing vigilance of the Canadian Forces towards armed aggression by foreigners against the territory of Canada and its allies, but the CF's continued deployment overseas in regional crises. Where international peace support and humanitarian operations are concerned, the rationale is not so much that of the Cold War, to prevent armed aggression against the Canadian state through a global superpower confrontation; rather, it is a desire to prevent regional troubles from threatening the global economic system to which Canada's welfare is firmly linked. As well, there is a desire to promote Canadian values, including the respect for democracy, the rule of law, human rights and the environment. International interventions on behalf of the individual rather than the state, in such places as Kosovo and Bosnia, have served to make the tempo of operations for the Canadian Forces during the 1990s one of the busiest in decades. Further, the nature of these operations — that is, coalition-based — are such that they have required deployed forces to achieve the greatest degree of interoperability with allies since the Korean War.[4]

How then do past and present conceptions of security help to project the role of the CF in addressing Canadians' security concerns in the year 2020? They offer one important insight: the likelihood appears high that the Canadian people will continue to expect their military to be involved in regional crises abroad, as well as defensive operations in Canadian and allied theatres. This would pertain whether today's multi-polar world predominated by the United States (or *Pax Americana* to which it is often referred[5]) sustains itself in 2020, or whether an adversarial peer competitor to the US emerges and rekindles the threat of global superpower confrontation. While the policy rationales would be different, the requirement in 2020 of globally deployable Canadian Forces, capable of undertaking multiple tasks, seems strong.

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[2] L. Delvoie "Canada and International Security Operations: the Search for Policy Rationales," *Canadian Military Journal*, vol. 1, no. 2 , pp. 13-24.

[3] Department of Foreign Affairs, Human Security: Safety for People in a Changing World (Ottawa: Department of Foreign Affairs, 1999) at http://www.dfait-maeci.gc.ca/foreignp.HumanSecurity.htm.

[4] Smith-Windsor, "Human Security: Canada's Role in a Globalizing World."

It is in this spirit of engaged internationalism that Canada historically has deployed military force overseas, not at the insistence of senior allied partners, but to a large extent out of national self-interest. Establishing the relevance of a military with international as well as domestic roles in 2020, whatever the strategic environment, is significant. However, it is hardly sufficient direction to begin conceptualising Canada's Navy After Next in any detail. A concerted effort to forecast the most likely nature of the future security environment is still important. A new Cold War-type environment might dictate greater emphasis on strategic deterrence and peace support interventions of the more benevolent kind of the 1970s and 1980s. Otherwise, a 1990s-type world would surely require forces more closely geared towards numerous, rapidly deployed and combat intense peace support operations (often within rather than between states), not to mention more humanitarian and counter-crime contingencies. *Leadmark* affirms the assumption reflected in *Strategy 2020* that the next twenty years will not see the rise of a peer competitor to the United States, or a notable narrowing of Canadians' broadened security agenda of more recent times. Accordingly, the forthcoming analysis of the future threats to Canadians' security is grounded in the specific direction provided first in the *1994 Defence White Paper*. *Strategy 2020* reiterated the fact that the Canadian Forces will provide "high quality, combat capable, interoperable and rapidly deployable task-tailored forces" ready "to defend Canada and Canadian interests and values while contributing to international peace and security." For reasons identified in the preceding paragraph, this is done with some measure of assurance that, even if a bipolar world were to re-emerge by 2020, the type of forces advocated for a multipolar one would still enjoy a large degree of suitability to the strategic environment.

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5 Charles W. Koburger Jr., *Sea Power in the Twenty-First Century: Projecting a Naval Revolution* (London: Praeger, 1997), pp. 6-7. Note that some analysts interpret this predominance as evidence of a unipolar strategic context.

TREND ANALYSIS

To appreciate, in greater detail, the security challenges that likely will concern Canadians in 2020, it is helpful to consider the broad social, economic and political trends from which they will conceivably stem. In the interests of conciseness, *Leadmark* identifies four key drivers shaping the 2020 global environment:

- **Global Economics** — Efforts to describe the phenomena shaping humanity's economic organisation into the 21st century frequently have led to the discussion of globalisation whereby national economies are increasingly integrated. State boundaries and jurisdictions are not so much crossed or opened as transcended, both in the context of trade (the trans-world marketing of products and services) and finance (money and financial instruments electronically circulate anywhere and everywhere across the globe in an instant).[6] In an effort to facilitate and regulate this integration, which is perceived by many as key to wealth creation, states collectively are establishing a growing web of treaties and supranational institutions.
- **Information Technology** — Another source of seemingly irreversible global change is technology. Information technology in particular continues to advance dramatically and is transforming industrial societies into knowledge-based ones. As a result of new and improved communications media (e.g., electronic mail; satellite telephony; multi-channel television universe), people increasingly are empowered by their ability to attain virtually immediate contact with one another, anywhere, anytime.
- **Demographics** — The world's population is expected to reach 7.2 billion by 2015, up from 6.1 billion in the year 2000.[7] The centre of growth, however, is not projected to be the developed world. The population of the West is both ageing (19 percent of Canadians will be senior citizens by 2025, as opposed to 12.5 percent in 2000) and getting smaller (unless fertility rates rebound, the total populations of Japan and Western Europe will shrink by one half in the next 100 years). By contrast, "In many parts of the developing world, the total fertility rate remains very high (7.3 percent in

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[6] Jan Aart Scholte, "Global capitalism and the state", *International Affairs*, 73, no. 3, pp. 427-52.

[7] United States, National Intelligence Council 2000-02. *Global Trends 2015: A Dialogue About the Future With Nongovernment Experts*. (Published by the National Foreign Intelligence Board under the authority of the Director of Central Intelligence, 2000), p. 6.

the Gaza Strip versus 2.7 in Israel), most people are very young (49 percent under age 15 in Uganda), and the population is growing very rapidly (doubling every 26 years in Iran).”[8]

- **Environment** — Humanity's natural environment is also undergoing change. Whether through natural or human-induced processes, the world's climate is warming. The International Panel on Climate Change (IPCC) has concluded that “Accelerated global warming could ... have a significant impact on all of the Earth's ecosystems.”[9] Climate change aside, in many parts of the world, population pressure, government mismanagement, over-consumption and growing urbanisation continue to lead to the exhaustion of agricultural land, fisheries, drinking water and other natural resources.[10] That said, improvements to human well-being represented by the introduction of new bio-technologies cannot be discounted (e.g., genetically modified crops).[11]

FUTURE SECURITY CHALLENGES

Having identified four key drivers shaping the 2020 global environment, it is possible to consider how they might, in future, incite or exacerbate threats to the security of Canadians and the global community at large. *Leadmark* carries out this analysis of future security challenges under five broad headings: Inter-State Conflict, Intra-State Conflict, Natural and Civil Disasters, International Crime, and Terrorism.

- **Inter-State Conflict** — Looking to the future, the CF's *Military Assessment* 2000 concludes that, while inter-state conflict may prove less frequent compared to conflict within states (see below), there is little to suggest that it will disappear.[12] How might violent inter-state conflict come about? Clearly, globalisation may play a part. Despite the rise in the number of countries interested in global economic integration to bolster their wealth and prosperity, evidence indicates that the effects are increasingly uneven. In this context, the threat of a violent backlash by developing countries against the prosperous developed world of the Northern Hemisphere, which includes Canada, must be borne in mind.[13] Resource shortages and environmental deterioration in the populous regions of the globe are potential long-term trends that may also exacerbate the gap between the have and have not nations, and thus see Western interests and citizens threatened by peoples desperate for survival.[14] Information technology may prove equally significant in this context. Western culture is spread in a rapid and far-reaching manner by modern trans-border communication technologies, heightening the developing world's knowledge and perception of its disadvantage *vis-à-vis* the West and its allies. Such consciousness may, in the end, lead poor and culturally challenged states to struggle for advantage and revenge as their societies boil with frustration.[15]

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[8] Peter Petersen, “Gray Dawn: The Global Ageing Crisis”, *Foreign Affairs*, 78, no. 1, pp. 42-55.

[9] Intergovernmental Panel on Climate Change (IPCC). *IPCC Working Group I Third Assessment Report;* Working Group I contribution to the Third Assessment Report of the IPCC, *Climate Change 2001: The Scientific Basis* (Shanghai: IPCC, 21 January 2001) at http//:www.ipcc.ch/spm22-01.pdf. See also Environment Canada, *A Primer on Climate Change: Forecasting the Future* (Ottawa: Environment Canada, 1997) at http//:www.ec.gc.ca/climate/primer/sec-5.htm.

[10] United States, National Intelligence Council, p. 17, states: “By 2015 nearly half of the world's population— more than 3 billion people— will live in countries that are ‘water-stressed’— have less than 1700 cubic meters of water per capita— mostly in Africa, the Middle East, South Asia, and northern China.”

[11] United States, National Intelligence Council, p. 21.

[12] *Military Assessment 2000*, pp. 24-25.

What form could attacks against Canada and its allies conceivably take? The rapid defeat of Iraq's armed forces in the course of Operation Desert Storm was interpreted by many regimes opposed to the United States and its allies as meaning that attempts to create military might on the Western pattern were doomed to failure. In the place of this strategy, investment in "asymmetrical" capabilities — military forces designed to counter, rather than imitate, Western capabilities — has proceeded apace.[16] Asymmetric warfare methods include: information operations (attacks on computer infrastructure, deception and psychological operations); the use of weapons of mass destruction (WMD — the employment of biological, chemical, radiological and nuclear weapons); and non-conventional operations (the use of novel tactics, terrain and technology, economic disruption, the instigation of civil disobedience, and the use of terror such as hijacking and kidnapping).[17] In a specifically maritime context, asymmetric warfare would tend to focus on "anti-access" tactics, which may involve a combination of long-range sensors, naval mines, cruise missiles, speedboats, and conventional submarines designed to prevent navies from operating in coastal waters.[18] The future threat posed by asymmetric warfare is all the more worrisome due to globalisation, which facilitates both the spread of technology and weapons proliferation worldwide. Ongoing advances in information technology contribute to the diffusion of dual-use technology suitable for the production of advanced arms including nuclear, chemical and biological weapons.[19]

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[13] World Health Organisation., *The World Health Report: Life in the 21^{st} Century*, A Vision for All (New York: World Health Organisation), 1998, p. 115.

[14] See Williamson Murray, "Preparing to Lose the Next War", *Strategic Review*, 26, pp. 51-62.

[15] Ralph Peters, "Constant Conflict", *Parameters* (Summer 1997), pp. 4-14.

[16] E. Hanlon Jr., "Taking the Long View: Littoral Warfare Challenges", in *The Role of Naval Forces in 21^{st} Century Operations*.

[17] National Defence. *Threat Definition: Asymmetric Threats and Weapons of Mass Destruction*. (Ottawa: DCDS, 2000).

[18] Hanlon, "Taking the Long View".

The potential for inter-state violence in 2020, however, is not limited to conflict between the developed and developing world. Whether by reason of national prestige or competition for scarce resources, the risk of inter-state violence erupting within the developing world itself, and in turn affecting international peace and trade, cannot be ignored. Consider, for example, the nuclear tension between India and Pakistan, or the long-standing dispute over the potentially oil-rich Spratly Islands of the South China Sea. For the same reasons identified above, globalisation and improvements in information technology will likely compound the risk of violent confrontation when such contentious issues arise.

Aside from potential inter-state discord among developing states themselves or between the have and have not nations, inter-state conflict may also conceivably arise between Western powers. While the risk is considered minimal — it is commonly held that democracies rarely go to war with one another — the competition for limited resources emerging as a possible flashpoint cannot be discounted out of hand. Canada's tense standoff with Spain during the 1990s over turbot fishing near the Grand Banks comes to mind in this context. Extension of Canadian economic sovereignty beyond the 200 nautical mile exclusive economic zone (which itself is the largest in the world),[20] would keep the prospect for similar challenges an ongoing concern two decades from now. With the possibility of a navigable Northwest Passage in as little as 10 to 15 years due to global warming, this will likely hold just as true in Canada's resource rich north as off the east and west coasts.[21] In addition, the risk that resurgent ethnic nationalism will combine with economic competition to lead Western powers into violent confrontation cannot be regarded as complete fantasy. Consider, for instance, the long-standing tension between Greece and Turkey over Cyprus and the limited resources of the Aegean, which, if allowed to escalate, could have significant repercussions for European stability and global trade.

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[19] *Military Assessment 2000*, pp. 14-15.

[20] Upon ratification of the United Nations Convention on the Law of the Sea (UNCLOS), Canada has ten years to support a claim of jurisdiction beyond the existing 200 nm EEZ before the Commission on the Limits of the Continental Shelf.

[21] IPCC, *IPCC Working Group I Third Assessment Report*. See also IPCC, *IPCC Special Report on the Regional Impacts of Climate Change: An Assessment of Vulnerability*, Chapter 3: The Arctic and Antarctic at http://www.usgcrp.gov/ipcc/SRs/regional/index.htm (nd 1997); Alanna Mitchell, "The Northwest Passage Thawed", *The Globe and Mail*, 5 February 2000, p. A11; and Colin Nickerson, "Girding for a Sea Change: With Ice Thinning, Canada Claims a Northwest Passage", *Boston Globe Online*, 21 March 2000 at http//:www.boston.com/dailyglobe2.

- **Intra-State Conflict** — Many international relations specialists have come to believe that conflict within rather than between states will be the most common source of violence and instability in the early 21st century. In this context, much attention focuses on so-called "failed states" — states whose governments and social structures become dysfunctional in the face of challenges from within to their legitimacy. Such challenges are often violent, whether they are mounted by new or revived ethnic, religious and ideological groups dissatisfied with the status quo, by organised criminal elements, or simply by bandits and robbers. Consider the Tamil Tigers' use of underwater mines and suicide bombers to destroy gunboats of the Sri Lankan Navy.[22] Groups with a similar will to use violence to contest state authority appear to be on the rise elsewhere in the world, as witnessed by the internal strife of Afghanistan, Bosnia, Chechnya, Somalia, Colombia, Rwanda, the Sudan and Angola. Why is this happening?

  The reasons for the disintegration of a growing number of states are varied and complex. Many states created after the First and Second World Wars have unresolved problems of assimilation, limited access to economic opportunity, ethnic or religious preferential legal structures, and unequal status. "The prospects of differences over religious or ethnic origin leading to major political confrontation and armed conflict are increasing because these problems are ensconced in the political, economic, and social structures of such states."[23] While many of these problems were held in check or overshadowed by the superpower confrontation of the Cold War, the latter's demise is seeing them rise to the surface. Globalisation and the information revolution also are exacerbating such internal divides. With many regimes seemingly unable to deliver the wealth flashing across television or computer screens (except for themselves — the income share of the richest 20% of a state's population has risen almost everywhere since the early 1980s),[24] marginalised elements of societies will regularly turn to non-state affiliations and allegiances, often with violent consequences. Future conflicts "will be shaped by the inabilities of governments to function as effective systems of resource distribution and control, and by the failure of entire cultures to compete in the post-modern age."[25] Environmental scarcity and degradation, coupled with growing populations and the globalising trade in arms, similarly may be expected to do little to mitigate the potential for violent internal strife within many states.[26]

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[22] "Tamils sink gunboats after talks fail", *Jane's Defence Weekly*, 23, no. 17, p. 6.

[23] Richard H. Schultz Jr., "Crisis Response and Power Projection", in *The Role of Naval Forces in 21st Century Operations*, pp. 41-54.

[24] *World Health Report 1998*, p. 115.

How will intra-state conflicts in 2020 concern Canada and its allies? Using the 1990s as a guide, the barbarity with which such conflicts are likely to be waged, from rape to mutilation to the indiscriminate killing of innocent civilians, will be a direct affront to the values they hold dear — human rights, democracy, the rule of law. The groups perpetrating violence can be expected to have no regard for the Geneva Conventions of 1864, 1906 and 1947, the Lieber Code of 1863, or the Hague Conventions of 1899 and 1907, governing the use of force. Some observers have even gone so far as to speak of the risk of a return to the Middle Ages in such circumstances.[27] Canadians and their allies will surely wish to resist this development. It is reasonable to forecast that the way in which future communications media increasingly will broadcast real-time images of strife into Canadian households from far off regions of the globe may well in turn elicit calls for the protection of our values and the alleviation of human sufferings. The observation made in a mid-1990s assessment by the Department of Foreign Affairs is likely to ring just as true in 2020 as it does at the time of writing: the "adoption of [Canadian values] internationally will be essential to ensuring that they are viable in our own country. Canada is not an island able to resist a world community that devalued beliefs central to our identity."[28] The disruption to the global economic system and the uncontrolled migrations to the West — often by sea — which intra-state conflicts could conceivably spark, must likewise be taken into account. Consider, for instance, the risk to the stability of the oil-rich Middle East should Egypt implode, as some analysts project,[29] or, in terms of uncontrolled population movements, the West's concern with places like Algeria, Kosovo and East Timor.

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[25] Ralph Peters, "The Culture of Future Conflict", *Parameters* (Winter 1995-1996), p. 18.

[26] For a commentary on future the challenges possibly to be faced by Africa in this regard, see Robert Kaplan., "The Coming Anarchy", *Atlantic Monthly* (February 1994), pp. 44-76.

[27] See Shultz, "Crisis Response and Power Projection", pp. 46-51.

[28] Department of Foreign Affairs and International Trade, (DFAIT) *Canada in the World* (Ottawa: DFAIT, 1995), p. 11.

[29] Robert Kaplan, "Eaten from Within", *Atlantic Monthly* (November 1994), pp. 26-58.

Naval Reserve assistance during the Manitoba Flood — 1997 *(DGPA)*

- **Natural and Civil Disasters** — While in 2020 some states may be put under strain for socio-economic reasons, others will be placed under pressure due to natural and civil disasters. Whether such disasters are manifested in the form of earthquake, flood, famine or epidemic, transportation disaster or the massive failure of key infrastructure, these crises are an enduring threat to human welfare. Some, in fact, may prove more common. Environment Canada forecasts, for example, a number of potential natural disasters resulting from increased global warming. Included in the list are: greater fire risk as a result of the drying mid-latitude climate; water shortages due to alterations in precipitation patterns; and, flood damage to low-lying areas through rising sea levels. In Canada alone, this would encompass the greater Vancouver region, Prince Edward Island, Halifax and Saint John. Along with tropical diseases inching northward to where populations may have no immunity, countries of the Northern Hemisphere may in future face the challenge of growing numbers of migrants seeking to escape — again, often by sea — the potentially harsher environmental conditions of the southerly regions of the globe.[30] With the possibility of more shipping through a navigable Northwest Passage within 20 years, the risk of a human disaster at sea in Canada's third ocean will likewise increase.[31] So too will the chance of a major air disaster in the Canadian north, if the projected increase in overflights by commercial aircraft is realised.[32] Even when natural and civil disasters do not strike close to home, there will be real-time internet and television images from afar: the devastation of a typhoon in South Asia, a hurricane in the Americas, the meltdown of an ageing nuclear reactor in the former Soviet Union, or famine and the ravages of AIDS (Acquired Immune Deficiency Syndrome) in Africa.[33] Scenarios such as these are likely to elicit calls for Canadian assistance in the alleviation of human suffering and the disruptions to global trade that such events could prompt.

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[30] Environment Canada, *A Primer on Climate Change: Forecasting the Future.*

[31] Compared to the route via the Panama Canal, a navigable Northwest Passage would cut the journey from Asia to Europe by 4500 nm.

- **International Crime** — It is not unreasonable to project that, in 2020, organised international criminal elements will be ready to exploit every one of the previously discussed potential threats to Canadian or international peace and security. International crime will profit in a number of ways: by being the inducer of arms proliferation; by stealing weapons and selling them to marginalised groups; by exploiting states under strain whether it be through the black-market trade of goods, illicit dumping of toxic waste, prostitution rings, extortion, or money laundering. Aided by globalisation and communication technologies that make national borders increasingly permeable, international crime has been on the rise since the end of the Cold War. Taken in a maritime context, international crime regularly translates into the illegal sea-borne trafficking of people and drugs, as well as piracy. The methods used to perpetrate such acts, moreover, are becoming increasingly sophisticated and violent. Consider the recent efforts of Colombian drug lords to construct a submarine capable of carrying 200 tonnes of cocaine to Europe and North America.[34] Or, where piracy is concerned, the seizure of the Japanese freighter **Alondra Rainbow** by masked and heavily armed men off Indonesia in late 1999.[35] In addition to the Indonesian archipelago, the coastal areas off Somalia, Brazil, and from Senegal to Nigeria, have recently recorded some of the highest incidences of piracy in the world.[36]

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[32] At the turn of the century, 20-30 commercial aircraft transit Canada's Arctic daily. The number of polar overflights is projected to increase dramatically with a planned upgrade of Russia's air traffic control network.

[33] Some studies project that over the next two decades, developing countries will experience a surge in both infectious and non-infectious diseases and in general will have inadequate care capacities. In particular, AIDS is forecast to be a major problem in not just Africa but also India, Southeast Asia, several regions of the former Soviet Union, and possibly China. "AIDS and such associated diseases as TB [Tuberculosis] will have a destructive impact on families and society. In some African countries, average lifespans will be reduced by as much as 30 to 40 years, generating more than 40 million orphans and contributing to poverty, crime, and instability." United States, National Intelligence Council, p. 16.

[34] Andrew Selsky, "Drug-smuggling sub awes police", *Ottawa Citizen*, 8 September 2000, p. A18.

[35] "The spread of piracy", *Foreign Report*, 10 January 2000, no. 2576.

How will the trend towards international criminal activity be of concern to Canada and its allies twenty years hence? At one level, it will be of concern because international crime puts at risk the very values that uphold democracy and an ordered international community. "The burgeoning of international criminal organisations threatens what [the Western allies] have fought for over the course of the last century: for a civilized structure, for rule of law, for democracy to be able to grow and flourish. Criminal organisations ... are authoritarian, they are ruthless, they clearly are undemocratic." [37] When criminal elements corrupt a society, the capacity of the West to build treaties it can rely on, to have international agreements that become tenable, and to have relations with governments that it knows to be genuinely in control, is challenged. In this context, international crime moves from being solely a law enforcement issue to one of national security. It also becomes a national security issue to Canadians when, for instance, the illicit trade in weapons of mass destruction threatens international peace, when illegal aliens paying thousands of dollars per head to crime syndicates begin arriving on Canada's shores, and when heroin and cocaine, much of it trafficked via the sea, begin ripping at the fabric of our own society. Southern regions aside, the prospect in 2020 of such scenarios being played out or facilitated in a more accessible Arctic frontier is all the more disturbing.[38]

- **Terrorism** — International criminal organisations are not the only trans-state actors that may pose a future security threat to the West and the peace and stability of the international community at large.

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[36] LCdr I.D.H. Wood, "Piracy Is Deadlier Than Ever", *USNI Proceedings*, 126/1/1, no. 163, pp. 60-63.

[37] Much of the material for this section was derived from J. F. Kerry, "International Criminal Organisations," in *The Role of Naval Forces in 21st Century Operations*, pp. 65-72.

[38] For example, see Michael Petrou, "Ottawa fears influx of illegal migrants to Tuktoyaktuk", *National Post Online*, 9 August 2000 at www.nationalpost.com/search/story.html?f=/sto.../365004.htm.

Groups and movements motivated by transcendent religious ideals or ethno-nationalist passions and affiliations, and resorting to terrorism to promote their cause, also will likely be a factor. The 1994 execution, by Algerian fundamentalists, of eight Italian sailors while on board their ship in the port of Jijel, is one example.[39] By the same token, it can be expected that the more common terrorist acts of bombing, hijacking and kidnapping will be joined by other asymmetric warfare methods similar to those employed in future inter-state conflicts (see above). The attack on the guided missile destroyer USS *Cole* while refuelling in the Yemeni port of Aden,[40] and reports of Osama bin Laden's quest for WMD are a case in point.[41] Moreover, two decades from now, the possibility of terrorist attacks on Canadian or allied territory and interests cannot be ignored.[42] Once again, this will be due to continued globalisation and ongoing advances in weapon and information technology.

Damage to *USS Cole* from a terrorist bomb *(US Navy)*

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[39] Anthony Forster, "An emerging threat shapes up as terrorists take to the high seas", *Jane's Intelligence Review*, 10, no. 7, p. 42.

[40] "Attack on US ship shows vulnerabilities". *Jane's Defense Weekly*, 12 October 2000 at www.janes.com/security/regional.../usscole001012_3_n.shtm.

[41] Stefan Leader, "Osama bin Laden and the terrorist search for WMD," *Jane's Intelligence Review*, 11, no. 6.

[42] *Military Assessment 2000*, pp. 5-6.

These facilitate weapons proliferation and not only contribute to the diffusion of information and know-how needed to produce advanced arms, but also ease the conduct of cyber-attacks on information systems.

FORCE PLANNING SCENARIOS

The preceding discussion has explored the array of potential challenges to the future peace and security of Canada and the global community at large. From natural and civil disasters to inter-state confrontation, they clearly span the spectrum of conflict discussed in Part 2 (Figure 1). It is to this genus of security challenges that the envisioned "high quality, combat capable, interoperable and rapidly deployable task-tailored" Canadian Forces of 2020 will conceivably be called to respond. To aid in the preparation of responses, eleven force planning scenarios have been promulgated for the Canadian Forces. As the *SCP* articulates: "The force planning scenarios ... are situated in the context of the spectrum of conflict ... The scenarios do not cover all future possibilities for CF military operations, but they do provide a good point of departure for force development." The eleven force planning scenarios listed as follows are described at Appendix B:

1. Search and Rescue in Canada
2. Disaster Relief in Canada
3. International Humanitarian Assistance
4. Surveillance / Control of Canadian Territory and Approaches
5. Protection and Evacuation of Canadians Overseas
6. Peace Support Operations (UN Chapter 6)
7. Aid of the Civil Power
8. National Sovereignty / Interests Enforcement
9. Peace Support Operations (UN Chapter 7)
10. Defence of Canada / US Territory
11. Collective Defence

FUTURE MARITIME SECURITY ENVIRONMENT

These Force Planning Scenarios anticipate various security challenges that pose demonstrably very real dangers to Canadians and the Canadian homeland: the spill-over from inter- and intra-state conflict, natural and civil disasters, international crime, and terrorism. But, for all of these threats, there remains a fundamental paradox for the Canadian Forces: Canadians remain to be convinced that any of them have direct domestic relevance. One projection of Canada in the 21st century, entitled *The Next Canada: In Search of Our Future Nation*,[43] is typical in being as remarkable for its major conclusion as for what it leaves unsaid. Notwithstanding a general concern for the integrating thrust of globalisation, there is continued confidence in the notion of "Canada" surviving as an independent and distinct political entity. At the same time, there is rarely any mention of concern for the security of the future nation. If it is expressed, it is muted; more implicitly, it is taken for granted.

The implications for the Canadian Forces are enormous. While not always articulated, there is an underlying presumption that arising security challenges will be met swiftly and effectively. Canadians demonstrated a general and widespread satisfaction with the role played by the CF in several natural disasters of the late 20th century, and satisfaction in particular with the navy's performance in the Swissair crash recovery in 1998. This can be translated into the expectation on the part of Canadians that their forces will maintain the levels of capabilities necessary to provide for their security. The challenge for the Navy After Next will be to fulfil that expectation. A reasonable capability must continue to exist to undertake the surveillance, independently and effectively, of Canada's vast oceanic estate. When challenges to it are detected — whether they be against the fisheries or other offshore resources, or trafficking in illegal aliens, or disruptions to critical maritime infrastructure — a reasonable capability must also exist to be able to act independently and effectively with a wide and appropriate range of force options. In many of these domestic functions, there also will need to exist the capability to cooperate with the United States and other hemispheric partners in a concept of layered defence to conduct the surveillance of, and take appropriate action in, shared areas of interest, such as the Caribbean basin.

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[43] Myrna Kostash, *The Next Canada: In Search of Our Future Nation* (Toronto: McClelland & Stewart, 2000).

Accepting that a direct conventional military assault against Canada is unlikely out to 2020, the notion of engaged internationalism recognises that the potential for asymmetric assaults will be reduced by resolving global problems at their source. To develop an appreciation of the particular naval challenges that could be encountered by Canada and its allies in the various contingencies, a "Future Naval Assessment" was undertaken to examine the potential capabilities of maritime forces in the various regions of the world. Space does not permit its development in the main text, but a summary is included at Appendix D, and this following section applies those findings to the broader security context.

During the Cold War, Western naval forces primarily were focused on countering the threat posed to allied sea lines of communication (SLOC) and territory by the Major Global Force Projection Navy of the Soviet Union. Over the next two decades, it appears that the open ocean (blue water) capabilities of non-NATO countries (with the possible exception of Australia) likely will be limited to a small number of Regional Force Projection Navies. That said, the regions where such forces are expected to operate will continue to be of strategic importance to the global economy and international stability, namely the Middle East and Asia. Historically, Canada and its allies have conducted operations in these theatres to uphold international law — Korea in the 1950s, the Persian Gulf in the 1990s — and they can be expected to do so in the future, should a crisis materialize (recall the anticipated continuation of Canada's agenda of engaged internationalism described above). Thus, while the security and defence of Canada and allies will remain the paramount mission, the CF's maritime forces will require the capacity to operate thousands of nautical miles from Canadian shores. Preferably, this will be undertaken in cooperation with blue water regional force projection navies, but the Canadian navy must be prepared for opposition in many situations.

By the same token, it is apparent that coastal naval forces and inshore military capabilities, from the most rudimentary to the most sophisticated, will continue to be of significance to Canada and its allies when operating abroad. In fact, they may become increasingly so, due to weapons proliferation since the end of the Cold War and the projected emphasis on Western expeditionary operations over the next two decades. This will hold true whether the Government directs the CF to evacuate Canadian citizens abroad, to conduct peace support operations, or to engage in humanitarian assistance in hostile or unstable environments.

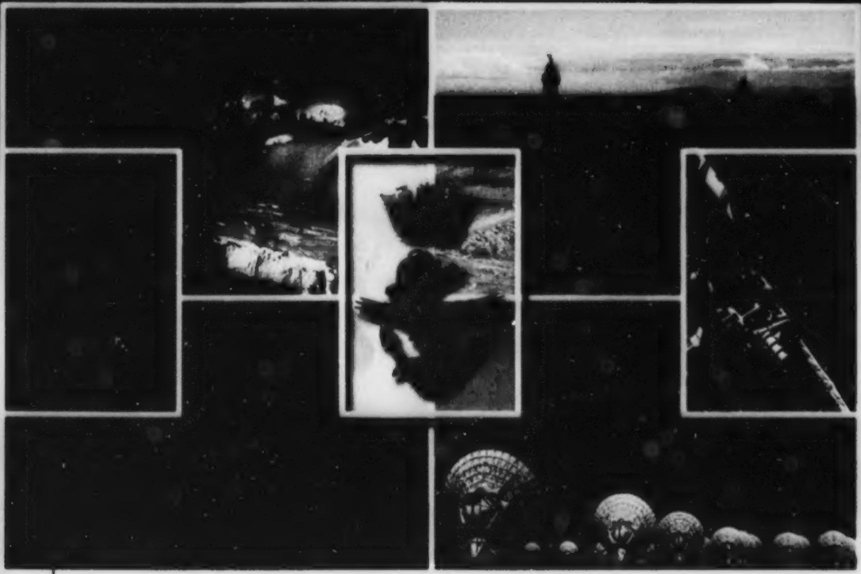
And what threats to Canadian naval forces will the world's littoral regions pose? In general terms, the spread of advanced weapon systems undoubtedly will increase the offensive power of many small fleets:

- Supersonic and "stealthy" subsonic anti-ship missiles will continue to improve in speed, manoeuvrability and intelligence.
- The growing number of countries operating submarines (in the Mediterranean, Persian Gulf, Indian Ocean and Southeast Asia for example) will be a growing cause for concern. When equipped with mines, advanced torpedoes, and (or) anti-ship missiles, submarines can be expected to represent a serious challenge to Western naval operations in the littoral.
- Theatre ballistic and cruise missiles can be expected to become ever more accurate and destructive. The ability to defend Canadian and allied forces against such missiles could well determine whether or not influence and action is exercised in a given region.
- The variety of shore-based anti-ship missiles, and mobile and fixed artillery systems (for example, the stationing of such missiles in the Strait of Hormuz) demonstrates the growing reach of shore-based forces.
- Beyond anti-ship missiles, Canadian and allied navies involved in coastal operations may face threats from ground attack aircraft, helicopter gunships and unmanned combat aerial vehicles, directly proportionate to the proximity to shore, as well as from asymmetric threats such as terrorist attacks from small craft similar to the attack on the USS *Cole*.
- In view of their low cost, and relative ease of deployment, mines will continue to be an attractive option to those desiring to impede naval operations in coastal areas.

SUMMARY

This part, supported by the Future Naval Assessment at Appendix D, has affirmed the policy requirement articulated in the *1994 Defence White Paper* and validated in *Strategy 2020* for high quality, combat capable, interoperable and rapidly deployable task-tailored forces, ready to defend Canada and Canadian interests and values while contributing to international peace and security. Canadians justifiably maintain the expectation that their navy be capable — independently and effectively — of patrolling Canada's vast oceanic estate, and reacting to challenges to it. In the context of a sustained, if not increased, expeditionary role for the Canadian Forces, attention has focussed on the wide range of future security challenges to Canada and its allies that the armed forces may be required to meet. The types of contingencies to which such challenges may lead have also been set out in the form of eleven Force Planning Scenarios, as postulated by the departmental *Defence Plan*. In turn, a survey of the types of forces — both naval and land-based — that could be encountered when operating abroad under the various scenarios has been presented. It would appear that Canada's Navy After Next must be ready to face numerous operational threats across the full spectrum of conflict both on the open ocean and in an increasingly significant littoral environment. This range of scenarios calls for the capabilities inherent in a ***medium global force projection navy***. With this in mind, coupled with the theoretical constructs developed in Part 3, Part 6 turns attention to an articulation of the Canadian naval mission, vision, roles and functions for the 21st century.

6



LEADMARK:

Mission, Vision and Strategy for Canada's Navy

6

LEADMARK:

Mission, Vision and Strategy for Canada's Navy

The Canadian navy is advantageously positioned to meet the challenges facing the Canadian Forces in the 21st century. Through the 1990s, the fleet effectively was rebuilt, making it uniquely equipped among the country's three armed services. The Canadian government has continued to make full use of its medium global force projection navy, from the Grand Banks and the seaward approaches to British Columbia, to operations off Haiti and in the Caribbean basin, to the Persian (Arabian) Gulf, the Adriatic Sea, Somalia and East Timor. Satisfaction with the near-term circumstances, however, must not be allowed to slip into complacency for the future. As much value as the government may have derived from the ongoing employment of its present fleet in both national and international roles, force planners must not be deterred from maximising the potential to be derived from the future naval forces. The challenge for the navy will be to remain abreast of the rapid pace of technological advances and societal change, so as to continue to present a rational, effective and affordable force structure in the service of Canada.

Returning to the discussion in Part 2 of *mission, values*, vision and *strategy*, this Part will articulate how the Canadian navy proposes to fulfil its mission and vision, while reinforcing Canadian values, beyond 2020. The resulting *strategy* will establish the ***leadmark*** for Canada's navy on its course into the 21st century. As fundamental principles, the *mission, values* and *vision* of the Canadian navy flow directly from those established for the Canadian Forces in *Strategy 2020*. They require no elaboration and are promulgated for the guidance of Maritime Command:

> *The Maritime Command* ***Mission***: *To generate and maintain combat-capable, multipurpose maritime forces to meet Canada's defence objectives.*

*Canadian **Values** to be defended include:*

- Democracy and the rule of law;
- Individual rights and freedoms as articulated in the Charter;
- Peace, order and good government as defined in the Constitution; and
- Sustainable economic well-being.

*The Naval **Vision**: The New Navy — professional, proud and always ready to make a difference for Canada. This vision is best characterised by the traditional motto, "Ready, Aye, Ready."*

Strategy 2020 calls for the Canadian Forces "to provide Canada with modern, task-tailored, and globally deployable combat-capable forces that can respond quickly to crises at home and abroad." Pursuing this direction will complete the transformation of Canada's navy from a Cold War service specialising in anti-submarine warfare to a balanced, agile and highly adaptable force, capable of providing government with a wide range of crisis response options.

CANADIAN NAVAL ROLES AND FUNCTIONS

While the preceding statements present broad direction with respect to the development of Canada's future maritime forces, the establishment of a viable naval strategy demands greater specificity. Essential to acquiring the requisite precision is the definition of the *roles* and *functions* both at home and abroad, to which Canada's Navy After Next must be tailored. To accomplish this, it is important to return to Professor Ken Booth's "use of the sea" triangle and the potential roles and subsidiary functions of 21st century navies posited in Part 3 (Figure 5). Indeed, as Booth himself declared: "Before asking, 'what is [our] naval strategy?', one should ask, 'what is [our] interest in the use of the sea?'"[1]

Increasingly, states the world over are recognising the need to balance their naval forces in ways that allow them to use the sea expeditiously and efficiently in response to the host of domestic and international challenges to their national security, interests and values. For a medium power such as Canada, with limited resources yet a desire to participate responsibly and effectively in world events, this means identifying those roles and functions that it must be ready to perform at or from the sea, either autonomously or in partnership with like-minded states, and those that will be left to others. The potential roles and functions for Canadian naval forces in 2020 will most certainly vary both in the type of activities and the potential level of military force necessary to carry them out. Indeed, the controlled capacity for violence resident in a fleet ranges on an escalating scale from presence and influence through coercion to war-fighting, and is respondent — based on appropriate political direction — to the challenges presented by the prevailing security environment. It is worth acknowledging also that the frequency and intensity with which any earmarked roles and functions are performed will in turn often depend upon the precise development of the international situation, the geographical variables of a particular contingency, and national preference at any given time.

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[1] *Booth, Navies and Foreign Policy*, p. 24.

MILITARY ROLE

***HMCS Algonquin* firing a Standard surface-to-air missle** *(CF Photo)*

MILITARY ROLE — DEFEND NATIONAL AND ALLIED COMMITMENTS

While a direct military threat to Canada is most unlikely in the foreseeable future, it should not be forgotten.[2] Vigilance always is required. Canada's future navy therefore must be prepared to perform a military role in using the sea as the homeland's outer line of defence against an armed aggressor. Beyond Canadian shores, collective security obligations in turn will require the Navy After Next to ready itself for modern war-fighting. The anticipated increase in expeditionary crisis management missions in the world's littorals likewise will carry the requirement of a navy that is able not only to float and move, but to fight. As one analyst has observed, the risk of escalation in such contingencies is ever present: "Canada embraces peacekeeping and, with allies, accepts peace enforcement tasks. She could therefore be drawn into a major war by alliance or coalition connections much as she was in the Korean Conflict."[3] The need to situate the military role of navies as the foundation of Canada's 2020 fleet is clear. To recall the insightful words of one learned study:

> *However remote war might sometimes seem, it is from their fighting ability that warships have their ultimate significance. By their latent potentiality in peace they can affect the management of politics amongst nations, and by their success or otherwise in discharging their mission in war they can help determine whether their country directs the course of war, or suffers it.*[4]

Identifying the military role as the cornerstone of Canada's Navy After Next does not mean, however, that all subsidiary functions associated with that role shall be undertaken. Defence of the homeland and the national spirit of engaged internationalism will continue to demand a combat ready, interoperable medium global force projection navy that is capable of maritime power projection, fleet in being tactics, sea denial and sea control. Some functions, however, will be beyond the size and available resources of the future fleet. In this context, Canada's Navy After Next will rely on cooperation with the like-minded US, British and French major global force projection navies to provide the other vital war-fighting functions of maritime manoeuvre, battlespace dominance and command of the sea.

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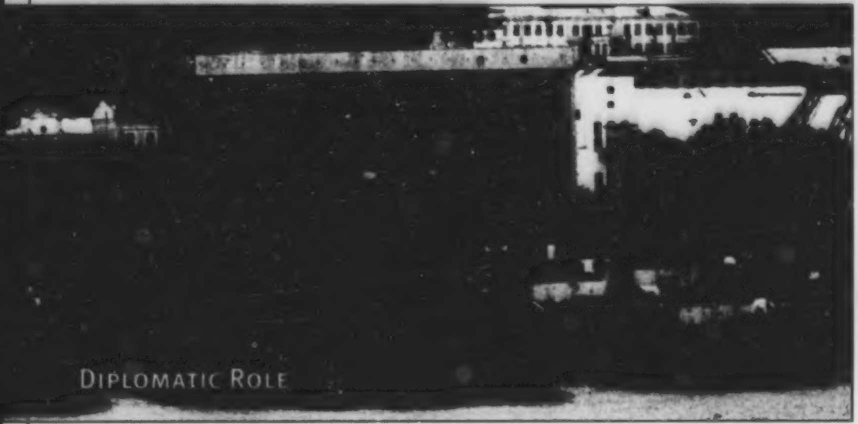
[2] *Military Assessment* 2000, p. 3.

[3] John A. English, "The Instrumentality of Armed Forces and the Role of the Canadian Army", in *National Network News*, VII, no. 1 (Spring, 2000), pp. 7-10. It is in view of this possibility of escalation that SCP states "the CF must focus first on units capable of combat in mid-level operations in interstate war."

[4] Booth, *Navies and Foreign Policy*, p. 24.

In summary, Canada's future medium global force projection navy will be expected to use the sea to **Defend National and Allied Commitments.** To fulfil this role, the navy of 2020 must be ready to perform the following *functions:*

- Sea Control
- Sea Denial
- Fleet in Being
- Maritime Power Projection



***HMCS Vancouver* visit to Vladivostock — 1998** *(CF Photo)*

DIPLOMATIC ROLE — SUPPORT CANADIAN FOREIGN POLICY

Accepting that Canada will continue to seek to influence the global security agenda by remaining engaged internationally, it follows that the Navy After Next must have the potential to play a significant role on the global stage in crisis management and naval diplomacy. This may involve the use of the sea to reach troubled or potentially unstable regions of the world in order to engage in track two diplomacy, confidence building or even the provision of humanitarian assistance. It otherwise may involve the presence or symbolic use of the Canadian fleet to reassure a friend or to deter an aggressor. Naval diplomacy, as such, will be deployed to influence, not only potential adversaries, but also friends and partners. With the United States and allied nations expected to retain their *de facto* "command of the sea" over the next two decades, it is reasonable also to forecast an increasing use of overseas littoral environments to launch more complex and (or) robust expeditionary crisis management functions — from

Civil Military Cooperation (CIMIC) through Peace Support Operations (PSO) to preventive deployments.[5] When government directs the future navy to participate in naval diplomacy in the interests of world peace, stability and the sanctity of international law, experience suggests that these operations likely will be conducted as part of a coalition or in cooperation with the armed forces of allied and like-minded nations. Again, it is important to bear in mind that the international Operations Other Than War (OOTW) functions described here, despite the limited use of force that they entail, also will carry the risk of escalation — when the diplomatic role and functions are temporarily replaced by the military role and its subsidiary functions.

In summary, Canada's future medium global force projection navy will be expected to use the sea to **Support Canadian Foreign Policy**. To fulfil this role, the Navy After Next must be ready to perform the following *functions:*

- Preventive Deployments
- Coercion
- Maritime Interdiction Operations (MIO)
- Peace Support Operations (PSO)
- Non-combatant Evacuation Operations (NEO)
- Civil Military Cooperation (CIMIC)
- Symbolic Use
- Presence
- Humanitarian Assistance
- Confidence Building
- Track Two Diplomacy

CONSTABULARY ROLE — SECURE CANADIAN SOVEREIGNTY

At the level of national sovereignty, there are certain functions that Canada's military can be expected to conduct in 2020, independent of support from other nations. In the absence of any major conventional military threat to North America, the primary sovereignty-related function of Canada's naval forces will continue to be patrols of our vast maritime approaches. This may extend to assisting other government departments (OGDs) in protecting and managing Canada's natural resources in the Atlantic, Pacific and Arctic Oceans, as well as interdicting goods or people attempting to enter Canadian jurisdictions illegally by sea or air.

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[5] For examples see the USN's *Forward ... From the Sea*, and the UK's *Strategic Defence Review* (1998).

So too will the navy and maritime air assets continue to be called upon to contribute to national Search and Rescue (SAR) and disaster relief should a natural or civil calamity occur within Canadian jurisdictions. Alongside the army and the air force, the Navy After Next equally must be prepared to respond to requests from provincial authorities for Aid of the Civil Power.

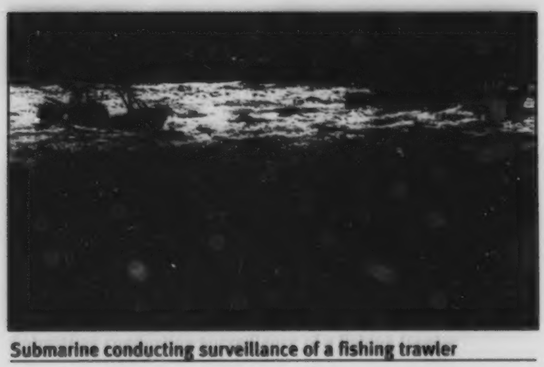
In summary, Canada's future medium global force projection navy will be expected to use the sea to **Secure Canadian Sovereignty**. To fulfil this role, the navy of 2020 must be ready to perform the following *functions:*

- Sovereignty Patrols
- Aid of the Civil Power
- Assistance to Other Government Departments (OGDs)
- Search and Rescue (SAR)
- Disaster Relief
- Oceans Management

Having established the roles and functions of Canada's Navy After Next, it is appropriate to illustrate them by adopting for Canadian purposes the Booth-Grove model updated at Figure 5. As may be deduced from the preceding discussion, the location of the military role at the base of the triangle is purposeful. From a ***globally deployable, multipurpose and interoperable, combat capable fleet*** flows, in the first instance the vital measure of insurance for Canadians against surprise, and thence all supplementary functions that serve to buttress their security.

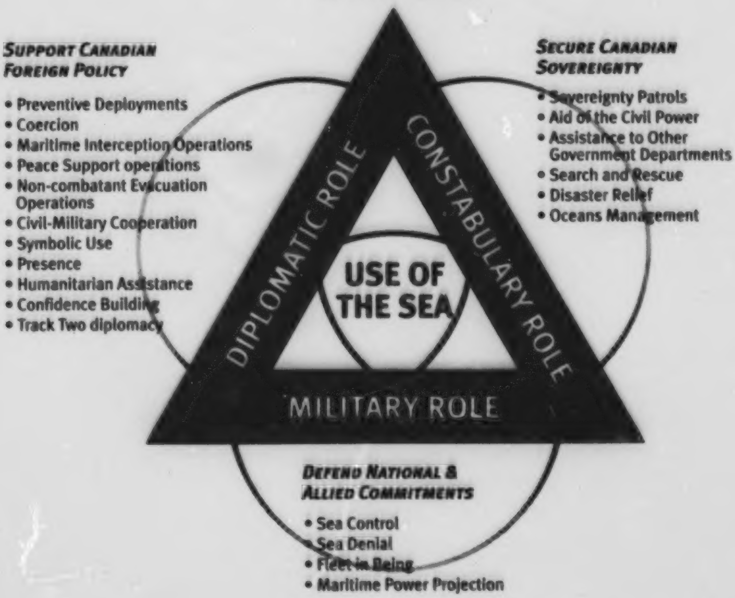
CONSTABULARY ROLE

Aurora overflying a merchant vessel ***(CF Photo)***



Submarine conducting surveillance of a fishing trawler

FIGURE 6
CANADIAN NAVAL ROLES AND FUNCTIONS FOR THE 21st CENTURY



SUPPORT CANADIAN FOREIGN POLICY
• Preventive Deployments
• Coercion
• Maritime Interception Operations
• Peace Support operations
• Non-combatant Evacuation Operations
• Civil-Military Cooperation
• Symbolic Use
• Presence
• Humanitarian Assistance
• Confidence Building
• Track Two diplomacy
SECURE CANADIAN SOVEREIGNTY
• Sovereignty Patrols
• Aid of the Civil Power
• Assistance to Other Government Departments
• Search and Rescue
• Disaster Relief
• Oceans Management
DIPLOMATIC ROLE
CONSTABULARY ROLE
USE OF THE SEA
MILITARY ROLE
DEFEND NATIONAL & ALLIED COMMITMENTS
• Sea Control
• Sea Denial
• Fleet in Being
• Maritime Power Projection

The validity of the potential Canadian naval functions identified above is affirmed by relating them to the eleven force planning scenarios of the Canadian Forces introduced in Figure 1 and confirmed in Part 5 (see second table in Appendix B).[6] This serves to identify those functions that the government could call upon the navy to fulfil and helps to delineate the wide boundaries within which the future navy will have to define itself. That these roles and functions are indeed possible is further supported by the fact that, during its hundred year history, the navy has been called upon to perform (or placed on stand by to perform) all of these functions, as was indicated in Part 4. With the potential roles and functions of the Navy After Next clear to mind, it is possible to turn to the next step in defining Canada's naval strategy for 2020. This involves clarification of the principles and core naval competencies that will serve to accomplish the roles and functions set out above.

PRINCIPLES OF A CANADIAN NAVAL STRATEGY

The Maritime Command mission, values and vision, and the identification of potential naval roles and functions, provide the fundamental guidelines within which to frame a broader Canadian naval strategic perspective. With these in mind, and referring to the general principles of medium power naval strategy described at the end of Part 3, it is possible now to address the question: what is an appropriate naval strategy for Canada in the 21st century?[7]

The navy is a critical element in the national imperatives of sovereignty enforcement, continental defence and engaged internationalism. As Canada's instrument of policy both in the extensive exclusive economic zone (EEZ) and upon the high seas, it must first and foremost be capable of accurately reflecting the government's broad intentions and faithfully enacting its specific direction. Over the course of the past century, Canada's navy has developed in tandem with the nation. It was created as one of the essential elements in the task of nation-building, a visible expression of the devolution of powers from Great Britain. Initially it was intended simply to assert sovereignty in Canadian waters, but as Canada's interests broadened around the globe so too did the reach of its navy, in peace as well as in war. With the growing commitment to collective security, Canadian political influence was measured by the credibility of its specialised military contributions to allied needs for the defence of North America and Europe. Now, a broadened human security agenda — at once both global and more independent — can only be embraced with a broader range of capabilities and with the confidence that fundamental national security is assured.

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[6] It will be noted that the only functions not identified in Figure 6 or in the table to Appendix B are command of the sea, battlespace dominance and maritime manoeuvre. Although the Canadian navy would participate in the conduct of such "military" functions as part of a coalition with major maritime states, it is assessed that this would be in a supporting capacity not warranting inclusion as a Canadian function. While other functions (such as the diplomatic use of coercion) also would most likely be conducted in a supporting capacity, it is assessed that Canadian support could be significant, as is the case of Canadian naval deployments in support of UN resolutions directed at Iraq.

[7] This section is formulated in part from the various background papers in Tummers, *MSWOP 11*, elements of which have been incorporated without specific citation.

Influence events at a distance — A capable navy is an essential element of national security, and not only as the outer seaward line of defence. While access to foreign bases is required to allow the overseas extension of the army and air force, only a globally deployable navy provides the Canadian government with the independent means to be engaged at short notice, anywhere (on three-quarters of the earth's surface), anytime — and at the moment and place of its choosing.

This global reach is a direct consequence of the nature of Canada's own waters over which the navy stands guard. The Pacific and the Atlantic areas of responsibility comprise some of the most challenging operating areas in the world, both on the open seas and in the littoral. As for the Arctic, global warming and advances in technology might allow a greater presence there, but surface operations will remain contingent upon the season. A number of factors, therefore, must be considered in the development of forces for Canada's naval defence: the split between two (and increasingly three) essentially disconnected coasts; the sheer size of the offshore areas (two-thirds that of the continental landmass); the harsh climactic conditions (winter gales and ice, thick fog in the summer); and the northern latitudes (the implications being wide swings in magnetic variation and reduced satellite overflight coverage). These factors and more mean that Canadian maritime forces — of whatever nature — must exist in sufficient numbers, diversity and size to ensure appropriate surveillance coverage and threat response on prolonged oceanic operations. In this respect, the exclusive economic zones of most other coastal nations are more limited in area and enjoy less harsh operating conditions. As such, they can be patrolled with corvette-size vessels (under 2000 tonnes displacement). Indeed, although Canadian Maritime Coastal Defence Vessels are used to good effect in certain types of sovereignty and fisheries patrols, they are limited in range and are not designed to cope with the roughest weather conditions experienced in the outer reaches of the EEZ. As such, the relatively large "minimum" size of Canadian frigates and destroyers (the *Halifax* class frigates are some 4750 tonnes) is driven by the basic requirements for endurance (sea-keeping, internal fuel capacity and general habitability) and an efficient package of general purpose capabilities (embarked or organic air support, as well as multiple sensors and weapons). The same considerations hold for the aircraft required to patrol Canada's vast maritime approaches.

It is this combination of endurance and general purpose capabilities that makes Canadian warships and patrol aircraft so well suited to overseas deployments. Another important factor is the number and variety of platforms available for duty. To allow for a reasonable tempo of operations, as well as the requirements of training, maintenance and leave, *the Defence Plan* prescribes for Unit Rotation Ratios: "As a general planning principle, the rotation ratio for deployed forces is 3:1. This results in a force structure that is four times the size of the potentially deployed force."[8] Theoretically, for example, in a 24-ship force,[9] this would allow six warships for assignment to operational roles including foreign deployments. In fact, it is complicated by such factors as coastal dispersion and the mix of vessel and aircraft types and sizes in the fleet, not all of which are appropriate for most deployments. (Indeed, the Canadian navy currently operates twelve frigates, four destroyers, four submarines and twelve coastal defence vessels, and individual deployments of units of all types are commonly undertaken.) To allow the most flexibility in managing crises as they arise, the basic organizing principle is for a task group to be maintained on each coast, with the operational responsibility for deploying it alternating between the coasts (the one on the other coast being in a lower state of readiness). Nominally, each task group consists of up to four major combatants — some combination of guided-missile destroyers (DDG), frigates (FFH) and submarines (SSK) — a replenishment ship (AOR), up to seven rotary wing aircraft, and up to six maritime patrol aircraft, with other maritime air forces assigned as required.[10] This construct should continue to be appropriate well into the future.

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[8] *Defence Plan 2001*, p. 3-4.

[9] Operational research consistently has demonstrated that the minimum number of warships needed to provide appropriate coverage and reaction in the Canadian areas of responsibility is 24 frigate or destroyer-type vessels. These numbers were presented to and approved by Cabinet in the course of the decision to build the Canadian Patrol Frigate — see "Maritime Surface Ship Requirements" (Privy Council Office, Cab 545-77RD, 22 December 1977). Most recently, they were confirmed in LCdr P.L. Massel et al, *The Canadian Maritime Forces 2015 Study, Phase II: Analysis of Maritime Force Structure Alternatives Using the FleetSim Model* (Ottawa: NDHQ ORD Report R9903, July 1999). Interestingly, the number has remained consistent over time, despite the increasing capabilities of modern warships, primarily because the type and scope of challenges also has increased over time.

[10] *MCPG 2001*, art. 106.10.

The expanse of Canada's offshore estate, and its position astride the shipping and air routes to Europe and Asia, means that this country has maritime interests of global import. It is a matter of some convenience that the security challenges in Canada's three ocean approaches demand the number and types of naval forces that allow also for effective Canadian intervention overseas. In extended periods of peace, when the threat of direct conventional assault is minimal, the potential for asymmetric threats against Canada can be diminished by solving global security challenges at their source. Ultimately, this is a peacetime planning construct — it must be accepted that availability for expeditionary operations in wartime would have to be rationalised with the security of home waters.

Freedom of the seas — Canada occupies the northern half of what is essentially an island continent. The North American Free Trade Agreement (NAFTA) facilitates a great internal cross-border trade, but a large proportion of this is carried by sea and any quantity of imports and exports from other lands must, by definition, be carried over seas.[11] Continental defence also is contingent upon mastery of the Atlantic, Pacific and Arctic Ocean approaches to the continent. Both point to the underlying principle of "use of the sea" as vital to the national interest.

This vitality strikes closer to the heart of Canadian values than is generally appreciated. There is a large body of academic work proposing that fundamental democratic notions are inextricably linked to Western maritime supremacy:

> *... our faith in democracy, personal freedoms and human 'rights', and the other comforting prescriptions of the humanist liberal credo, stem from the supremacy of maritime over territorial power. ... It is a natural process: seafaring and trade beget merchants; merchants accumulate wealth and bring the pressure of money to bear on hereditary monarchies and landowning aristocracies, usually poor by comparison; and sooner or later merchant values prevail in government.*[12]

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[11] In this respect, the Chairman of the Conference of Defence Associations Institute (CDAI) / L'Institut de la conférence des associations de la défense (ICAD), Lieutenant-General (ret'd) Charles Belzile, noted among "The Benefits of Investment in Defence," in *On Track* (Newsletter of the CDAI / ICAD), 5:4 (29 December 2000), p. 23:

> Canada has also an economy more dependent than most on foreign trade. In fact, both exports and imports are equivalent to 70% of GDP, compared with 24% in the US and 21% in Japan. Moreover, some 85% of Canadian trade is with the United States. This factor means that Canadian prosperity is linked closely with US prosperity and by extension world stability.

[12] Peter Padfield, *Maritime Supremacy & The Opening of the Western Mind: Naval Campaigns that Shaped the Modern World* (New York: Overlook, 2000), pp 1-3. This theme also underlies Gray's argument in *The Leverage of Sea Power*. See also passing references in David Gress, *From Plato to NATO: The Idea of the West and its Opponents* (New York: The Free Press, 1998); and Felipe Fernandez-Armesto, *Civilizations* (Toronto: Key Porter, 2000).

Maintenance of freedom of the seas, so that they will act as a highway and not a barrier for the interests of Canada and like-minded states, also has military implications. Regardless of the future that unfolds, the world will remain an unpredictable place characterised by periodic outbreaks of local or regional conflict. Thus, in any foreseeable future security environment, those states (of which Canada is one) that seek stability — or evolutionary *vice* revolutionary change — will need to remain engaged internationally. Since expeditionary littoral warfare is contingent upon the principle of freedom of the seas, they would be advised to exploit the strategic advantages of sea power. To remain involved and exert influence in world affairs, Canada will require the maintenance of a medium global force projection navy.

Joint Enabler — This generally uncontested freedom of the seas means that navies can be dedicated more than ever to influencing the course of military actions on land. Although the possibility of global conflict is not to be dismissed out-of-hand, the foreseeable strategic environment suggests little threat of major inter-state conflict with the potential for all-arms conventional warfare on the model of the two world wars. With the reduction of tensions in Eastern Europe, zones of potential conflict with any large adversary are likely to be in areas for the most part unreachable and (or) unsustainable by conventional expeditionary land forces.[13] Recognition of the necessarily expeditionary nature of future large-scale military operations has direct implications for naval force structure. Certainly, the ability to project power from sea to land will be central, and

JOINT ENABLER

HMCS Magnificent* landing Canadian Army vehicles, Port Said, Egypt — 1957 *(CF Photo)

major global force projection navies are developing concepts of *maritime manoeuvre* (essentially amphibious assault) and *sea-basing* (mobile offshore logistics bases) to allow the application of sufficient force from the sea against continental powers.[14] Medium global force projection navies such as Canada, however, are unlikely ever to need to generate the mass of forces (short of total war) that would make procurement of these capabilities practical. Rather, they should aim to ensure that their forces are able to integrate effectively in combined operations as part of a coalition.

Even the varieties of peace support operations in which Canada might choose to contribute are, in their essence, expeditionary. This again strongly suggests the validity of the use of the sea to deliver, protect and supply land forces (both the army and the air force, and in some cases NGOs), in a limited capacity in an environment of local sea control. For those instances in which an independent Canadian joint expeditionary capability is determined to be necessary, the extremes of the spectrum can be bounded: on the low end by *ad hoc* deployments of modified single replenishment ships; and on the high end by a tailored, high-readiness, forcible-entry structure. Neither is appropriate to Canadian security needs or the capabilities that reasonably should be developed: the low end is inadequate to make a meaningful contribution, while the high end amphibious assault capability is prohibitively expensive. In broad terms, what is needed between these extremes is an adaptive joint force structure, maintained at high readiness, deployable globally by means of strategic air and sealift. It should be expected to be capable of being inserted into a part of the world that may not support a commercial-standard off-load, but which does not at the same time present a significant military threat to the force in disembarkation.

Another traditional characteristic of navies will prove possibly to be an enabler of a different sort, with growing political appeal. Naval battles can be bloody, with occasionally spectacular losses (such as that of the battlecruiser HMS *Hood*, lost with all hands but three to the German battleship *Bismarck* in 1941). Paraphrasing military historian John Keegan, however, it is noteworthy that, "as massacres go, they compare not at all with the worst of what armies wreak on land."[15]

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[13] This line of thinking, common to the background papers in Tummers, *MSOP 11*, also is developed in Eliot Cohen, "Defending America in the 21st Century", *Foreign Affairs*, 79:6 (November / December 2000), pp. 40-47ff.

[14] For an exploration of these concepts, see Admiral (USN, ret'd) William A. Owens, *The High Seas: The Naval Passage to an Uncharted World* (Annapolis, MD: Naval Institute Press, 1995), especially Chapter 8, "Force 2021," pp. 160-171.

[15] John Keegan, *The Price of Admiralty: The Evolution of Naval Warfare* (New York: Penguin, 1989), p. 100. Keegan makes the point in comparing the cost of Nelson's victory at Trafalgar (8500 killed and wounded out of some 50,000 present, or 17%) to Wellington's at Waterloo (55,000 among 192,000, or 29%). The modern experience does not disprove the notion: the loss of the British destroyer *Sheffield* in the Falklands war of 1982 cost the lives of 24 sailors out of a total ship's company of 288 (8.3%). See David Brown, *The Royal Navy and the Falklands War* (London: Leo Cooper, 1987), p. 144.

Whether or not one subscribes to the notion that "Canada is the first post-modern state",[16] the conduct of military operations since the end of the Cold War indicates a sensitivity on the part of advanced industrial states to sustain casualties in the course of expeditionary operations, no matter the accepted validity of those operations. At least one analyst draws the conclusion that "they will be reluctant to send in ground troops. Instead, it will be the navy that has to carry the burden of the commitment, which is necessarily limited, of those states to the wider world."[17]

Wide range of operations — Whether in the interest of Canadian values, or out of the value of our interests, Canada will remain engaged on the world scene. This means that the Canadian navy must continue to be prepared to deploy globally, and at short notice. Despite overall human progress, the world is — and likely will remain — a heavily armed, potentially dangerous and unpredictable place. There is much work to be done to make it better, and the navy offers many unique responses to do so across the continuum of international crisis response: from symbolic port visits, through humanitarian assistance and maritime interception operations, to the exercise of sea denial and sea control. As a consequence, Canada's navy must be prepared to go in harm's way, and Canadian naval forces will benefit from maintaining the broad base of capabilities demanded by the requirement for "combat-capable multi-purpose forces."

At the same time, there are a number of potential Canadian naval functions that are constabulary in nature, or at least may not require combat capabilities in order to be fulfilled. In many states, police or coast guard establishments have primary responsibility for certain of them. That said, unless Canada chooses to cease involvement in international operations, it is reasonable to assume the country will continue to need naval forces as well as constabulary forces. And while military and naval forces trained and equipped for combat tasks can be employed for non-combat roles, the reverse is not true. Thus, there is tremendous synergy to be derived from the employment of naval forces in the fulfilment of many of these functions.

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[16] Richard Gwyn, *Nationalism Without Walls: The Unbearable Lightness of Being Canadian* (Toronto: MacMillan, 1996). On the idea of "post-modern states", see Jason Plotz, *The Navy and the Post-Modern State: Maritime Security Occasional Paper No. 9* (Halifax, NS: Dalhousie University Centre for Foreign policy Studies, 2000), pp. 2-4ff. He synthesizes (p. 3) the literature that argues:

> ... the world is evolving into a system which incorporates three different categories of states: the pre-modern or failed states; the post-modern states of the advanced industrial West; and the bulk of states still somewhere in the middle, the modern states still very much of the historical Westphalian model. The post-modern states are prosperous and as such are no longer inclined to run risks internationally, instead they seek to cocoon themselves from the troubles of a world still trapped in history. Such states no longer have the will to protect their interests, because they are unwilling to pay the price of engagement.

[17] Plotz, *The Navy and the Post-Modern State*, p. v.

Indeed, the wide range of capabilities resident in the Canadian navy makes it a particularly useful option for a variety of sovereignty functions. Maritime air assets can cover vast swaths of ocean at a high re-visit rate. The presence at sea of a helicopter-carrying warship on regular patrol provides, for example, a rapid Search and Rescue (SAR) response in the event of a marine emergency. The command and control facilities of naval vessels and the organizational expertise of their highly-trained crews present ideal facilities for coordinating the response to a domestic disaster. A single submarine patrolling with a fitted towed-array can detect surface and sub-surface activity over an extensive area of ocean. As described by one analysis, a modern task group is able to maintain an active presence over a large expanse of ocean:

> *A naval surface task group of four modern frigates or destroyers and an operational support ship (AOR), with a combined helicopter capacity of eight, has a continuous surveillance coverage of some 192,000 square kilometres (an area equivalent to nearly half the Baltic Sea or roughly the total area of the five Great Lakes).*[18]

Moreover, in the conduct of domestic operations, the navy does not always act alone, but in close cooperation with Other Government Departments (OGDs). Strategic partnerships exist already with the Department of Fisheries and Oceans (DFO), the Royal Canadian Mounted Police (RCMP) and the Department of the Environment (DOE), among others.[19] The seamlessness and complexity of such relationships will only increase as pressures mount in areas such as: environmental degradation, extreme climatological events, offshore resource exploitation, development of sea lanes through the Arctic, and the smuggling of human, narcotic and other illicit trade.[20]

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[18] Crickard and Haydon, *Why Canada Needs Maritime Forces*, p. 23.

[19] For a good overview, see: Glen Herbert, "Maritime Enforcement in Canada's Oceans," in *Maritime Affairs* (Fall 2000), pp. 11-16.

[20] Besides the navy, DFO operates the Canadian Coast Guard as well as a fleet of fishery and oceans management vessels of various sizes. Given this fact, and the overlap and closeness of the various relationships, investigations have been made into the feasibility of their integration, in the interests of closer control and economy. The latest and most thorough of these was published as, *All the Ships That Sail: A Study of Canada's Fleets* (Ottawa: Treasury Board, 15 October 1990 [commonly referred to as The Osbaldeston Report]). It concluded (pp. 58-59ff):

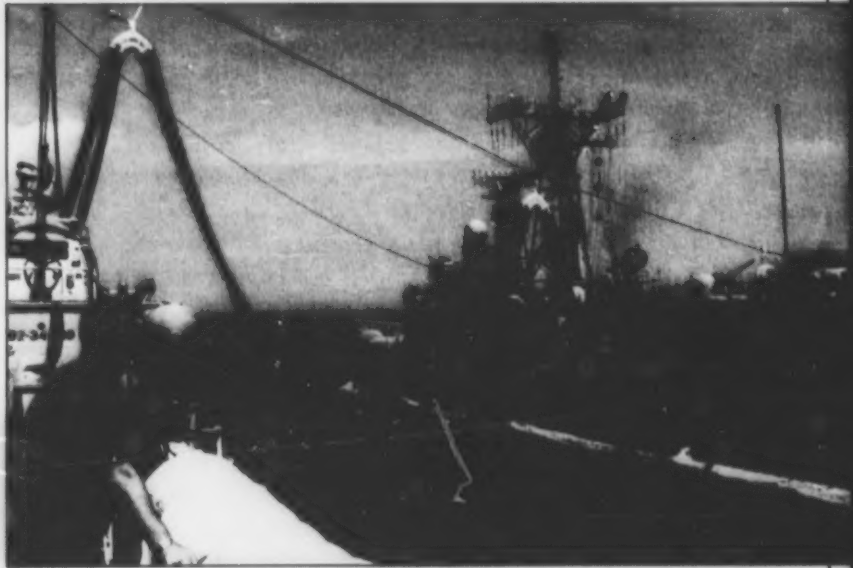
> The full consolidation or "single fleet" option, while theoretically possible, is not a viable option and should not be pursued. ... The present arrangement... is, generally speaking, a suitable organization structure for efficient and effective utilization of the marine assets. ... Through a more effective rationalization of the supply/demand market... the necessary improvements can be achieved with the minimum of disruption and cost. ...
>
> It is therefore recommended that an Interdepartmental Program Coordination and Review Committee [IPCRC]... be established... to provide a forum — a market place — where all suppliers and users can table their requirements and thus the allocation of unmet demand to unused or available ship capacity will be facilitated. ...

Versatile and capable — The structure of the Canadian navy allows for the provision of a meaningful contribution to a wide range of requirements. While deployments of individual ships, submarines and aircraft may be appropriate to certain situations, these must be undertaken on the premise that they at least be able to look after themselves. Presuming they are to join a multinational force, they also must be able to add something to the collective operational capability. In order to qualify for a political role in the management of a crisis, the deployment of a more substantial force may be required. As such, the Canadian navy must retain its competence in task group operations. While, by definition, the precise composition of any task group is dependant upon the mission, the generic makeup of a Canadian Naval Task Group needs to offer a broad range of capabilities with both military and political appeal in the evolving environment postulated for 2020:

- A command and control capability is not only the basic underpinning for the successful conduct of national operations, but it is also the vehicle by which command of multinational forces can be exercised. From the personnel perspective, it is through the existence of national task groups that future Canadian multinational commanders gain experience. Operationally, not only does it assure a place in the decision-making process, it also provides a mechanism for significant input to allied doctrinal development.
- All warships must possess measures for self-defence, but an ability to extend the protection over a broad expanse of ocean, to cover auxiliaries and merchant vessels, allows the force to adopt a proactive stance, instead of being reduced to one of simple reaction.
- A fleet replenishment capability is a key force multiplier. It assures a naval force the independence to deploy anywhere in the world, and is the capability that separates a coastal navy from one that has international relevance.
- The multi-purpose capabilities of frigates are gaining greater appreciation worldwide, with the result that the employment of this type of vessel in larger multinational formations has become a dominant trend in modern sea power.
- Non-nuclear propelled submarines have a general purpose utility, but are particularly suited for covert inshore operations. Their greater degree of invulnerability and stealth in the littoral environment may allow operations in areas potentially inaccessible to a surface task group or air assets.

- Maritime coastal defence vessels perform a vital array of sovereignty and training functions, and have been used in the development of a limited mine warfare capability. A Remote Minehunting System (RMS) is likely to be transferable to other capable platforms, as needed.
- The inherent flexibility and force multiplier qualities characteristic of both maritime helicopters (MH) and maritime patrol aircraft (MPA) effectively extend the surveillance horizon and the responsiveness of the task group. As well, aircraft and submarines acting co-operatively, either alone or as part of a task group, represent a tremendous synergy in maritime capability.

The two themes coming to typify 21st century naval operations are that they will be multinational, and they will occur in the littoral. Neither of these concepts is new to the Canadian navy, with its long experience of allied cooperation in coastal zones from the beaches of Normandy to Korea and the Persian Gulf (not to mention having toiled with the unique challenges of shallow water antisubmarine warfare in the Gulf of St Lawrence and on the Grand Banks). Still, Canada's major allies, which include many other medium power navies, are shifting the emphasis in



Versatile and Capable: ***HMCS Protecteur*** **refuelling a RAN frigate — East Timor — 1999** ***(CF Photo)***

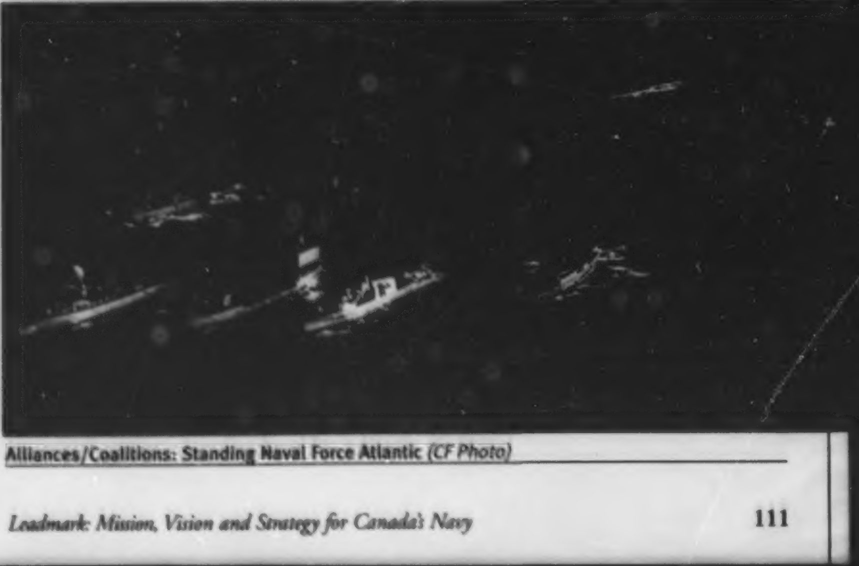
development of their forces, from one exclusively concerned with "blue water" operations on the open oceans, to one more concerned with being able also to operate effectively in the "green water" of the littorals (see the various foreign publications cited in Appendix A). Their reasoning is driven by a combination of two factors, both of which apply equally to Canada: a belief that concern for human security increasingly will trigger political, diplomatic and military responses to international crises; and, a recognition that there are very few areas in the world which are not accessible from the sea (see map 4).

The expeditionary nature of overseas military operations point to a number of capabilities that require additional consideration for the Canadian Forces:

- An embarked Joint Headquarters (JHQ) — The initial sea-basing of a JHQ provides an inherently secure facility in which the administrative "tail" can draw upon the "hotel" services normally resident in any ship, thus allowing a larger proportion of ground troops (the "teeth") to be dedicated to the assigned mission.
- Intelligence, Surveillance and Reconnaissance — Upon arrival in a landing area there often is not sufficient precise knowledge of local conditions. Efforts to gather this knowledge, and to conduct other forms of local battlespace preparation, have been demonstrated as essential to the ultimate success of the mission.
- Protection of landed forces — It must be appreciated that even a permissive landing environment can quickly devolve into a hostile lodgement. In such instances, naval forces can respond in two ways:
  - Area air defence — the "umbrella" enjoyed on the open seas is large enough that it can be extended over forces operating ashore in an unstable region.
  - Precision attacks (naval fire support) -- this involves fire support against attacking enemy land forces, either in an offensive capacity to reinforce the position or in a defensive capacity to cover a withdrawal.
  - Strategic lift — modern land and air forces depend upon a vast amount of heavy technical equipment to perform their roles and they consume large quantities of fuel, ammunition and other supplies in the conduct of operations. Airlift allows for the rapid initial delivery of personnel and equipment in very limited quantities, but demands prepared and secure airstrips. Sealift will be required in support of any operationally significant mission and provides the added flexibility of needing no host nation support.

Alliances / Coalitions — The above capabilities would be required whether Canadian Forces operate on their own or in combination with other forces. Circumstances may well arrive in which Canada will want to — or will have to — act on the world stage alone. This in itself argues for the retention and development of a broad range of capabilities. Accepting, however, that Canada is more likely to conduct overseas military operations in concert with other like-minded nations, whether as a result of an alliance commitment or in a coalition effort, there remain good reasons to prefer this broad base of capabilities.

As stated elsewhere, even the United States is reducing the scale of its forces; although it will retain its superpower status, it will no longer be in a position to be all things to all people. On occasion, it is also advantageous to both the US and its allies that the US not act unilaterally as "the world's policeman." If recent experience is an indication, there will continue to arise any number of situations in which naval forces of medium powers such as Canada can make a difference by working in combination with the USN, or even with each other. But to do so, they must be capable of integrating seamlessly and in sufficient numbers to offer a meaningful contribution. Indeed, it has been the Canadian tradition to field formations large enough to warrant an independent command (e.g., an army brigade, an air wing, or a naval task group), and this has served to solidify the often disproportionate diplomatic representation Canada has enjoyed on collective security councils such as NATO and the UN. These larger military formations, by definition, must incorporate a variety of capabilities in order to retain their own flexibility for independent action in the battlespace and so as not to detract



Alliances/Coalitions: Standing Naval Force Atlantic *(CF Photo)* from the efforts of their allies. The alternative of concentrating on specialist or support roles would limit the ability to operate independently. This would restrict Canada to the role of a minor contributor in a multinational coalition and thus would seriously restrict political options; it would also seriously detract from Canada's ability to independently assert its rights as a sovereign nation within its own water space. To be certain, Canadian naval forces will be joined to off-shore and overseas military operations in order to bring a hasty resolution to an undesirable situation. But the Canadian government will want to influence the conduct of the operation and the employment of their forces. What counts in multinational operations is a prominent position.

With Canada's principal alliance being that with the United States, it is possible to identify the space within which Canadian military planners must operate. "The United States will continue to provide both the floor and the ceiling of what is considered necessary for Canada to spend on defence, both in terms of technological capabilities and in the scope of operations undertaken."[21] It will provide the ceiling in the following context: the knowledge that North America constitutes a "security community" means that, if Canada was ever seriously menaced by any country other than the United States, the latter would involve itself in the defence of Canada, if only for its own self-interest. But the US will also provide the floor for Canadian defence spending, in that the needs of North American security will require a certain minimal capacity to contribute to what will continue to be regarded as the "common" defence, whether close to home or in forward deployments. Therefore, maintaining viable and effective naval task groups with a broad range of capabilities will provide the Canadian government a significant degree of latitude in negotiating between this floor and ceiling.

Interoperability — In militaries, as in industry, there has to be a standard; amongst world navies, that standard will be set for the foreseeable future by the USN. Interoperability allows a number of advantages, ranging from the efficiency of common doctrine in the battlespace, to the opening of access to wider markets for Canadian high-technology products. Opponents of closer allied cooperation will argue that integration into US and NATO naval formations undermines Canadian sovereignty, but that is not necessarily so. Rather, because each mission is a function of choice, it tends to strengthen Canadian sovereignty. This issue, of the potential effect of closer allied cooperation upon independence, is a matter of national strategy. For the navy, it must be noted and considered while implementing the requirement, identified in *Strategy 2020*, for enhanced interoperability.

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[21] Paraphrased from Haglund, "What Missions for Canada's Armed Forces in the 21st Century?", p. 13-14.

Interoperability, however, must be effective not just with allies, but also with other national services. In evaluating how the Canadian navy can best realize the appropriate degree of interoperability at both these levels, it is important to recognize that what constitutes *joint operations* is quite different from what is meant by *combined operations*. Stated simply, combined operations are those in which one of the three branches of the CF operates closely with the same or different service of another country or countries. Examples include the integration of a Canadian frigate into a US carrier battle group (CVBG) or the multi-national NATO Standing Naval Force Atlantic (STANAVFORLANT, or SNFL) squadron. Joint operations, on the other hand, are those in which two or more of the Canadian services — navy, army and air force — work together; for example, the disaster relief response to the Red River Flood in 1997, where elements of the three services worked together as a single force.

A conceptual problem arises when, as often is the case, these two terms are used interchangeably, creating confusion in determining how much "jointness" the Canadian Forces needs to achieve. This is compounded by the tendency to make linear comparisons between the degree of jointness required by the CF and the level of jointness needed in relation to our larger allies. Given the size of the US military, its capital investment and its global commitments, it is extremely important to US policy makers that all four US services — Navy, Army, Air Force, and Marines — are able to work as a single joint force. This is especially important to them, since it is quite conceivable that US forces could be involved in a major conflict without any alliance support (the same can be said for Great Britain and France, albeit at a much reduced level in terms of the scale of any potential operation). The point is that, in addition to embracing jointness at the strategic

Interoperable — *HMCS Calgary* as part of a USN Carrier Battlegroup — 1995

and the operational levels, these militaries must also develop a capability to conduct joint operations at the tactical level. At the beginning of the 21st century, with 60,000 regular force personnel, the Canadian Forces do not possess the critical mass that would permit it to conduct an unsupported joint operation outside of Canada at any but the most basic level. The evolving concept of employment for the Canadian Forces in 2020 identifies that the development of a comprehensive capability at the operational level will not be pursued.

Thus, linear comparisons speaking to the Canadian need for the same level and degree of jointness as our major allies do not apply, and such an approach can only lead to unrealistic expectations. These observations must be taken together with the fact that the bulk of military deployments in support of Canadian foreign policy generally will be made, not as a solely Canadian undertaking by a CF joint force, but rather as part of a coalition effort (whether NATO, UN or *ad hoc*). Accordingly, to achieve the greatest relevance in terms of their contribution to furthering government policy, each of the three services must invest considerably in their ability to operate and, as necessary, integrate with the joint structures of our major allies. This will ensure that separately assigned CF tactically self-sufficient units (TSSUs) can successfully "plug into" a coalition joint force when conducting international operations.

Much of the necessary CF joint capability will evolve from the fact that each of the Canadian services, in response to a fundamental guiding principle of *Strategy 2020*, will strive to achieve a high degree of interoperability with its US counterpart. The Canadian navy continues to demonstrate substantial progress in this regard with the on-going integration of naval units into US carrier battle groups. In due course, as each of the navy's Canadian partner services are involved concurrently in developing the same degree of interoperability with the US Army and Air Force, they will achieve a consequent degree of jointness.

Indigenous capacity — The independent ability to effectively conduct domestic operations must be maintained, even if combined expeditionary operations are likely to be the most demanding feature of the future. The promise of the 21st century is that emerging technologies and evolving concepts of command and control will allow for greater commonality in doctrine and organizational arrangements for service support, and for greater efficiencies in equipment development, procurement and employment. As a result, the joint capability of the Canadian Forces will be enhanced, and with it the ability to independently mount joint operations domestically.

This, in conjunction with the maintenance of broad-based levels of national infrastructure and political support will work to offset the integrationist tendencies of interoperability. Close cooperation at the operational and tactical level between various government departments is effected through the Interdepartmental Program Coordination and Review Committee (IPCRC). This could be expanded beyond a low-level planning forum into a mechanism for developing a national maritime strategy, and for supporting a coordinated approach to a national security strategy. These governmental strategic partnerships could be expanded to include the private sector. The existence in Canada of a domestic capacity for the development of leading edge technology with military application, and the ability to repair and maintain naval vessels (as well as aircraft) within our borders are vital elements to ensure the operational effectiveness and independence of the navy.[22] On a different level, exchange programmes with allied navies and billets in allied schools (especially staff colleges) are important tools in the development of a common operational doctrine. The failure, however, to retain and develop Canadian military educational and training institutions could stifle national progress and encourage the adoption of a foreign culture.

The long lead-time to build and crew warships to an operational standard makes the role of the reserves deserving of special mention. The naval reserve does not exist solely as a basis for mobilisation. Instead, its value is in the assignment to it of specified tasks within the Total Force, such as port security, naval control of shipping (NCS), manning the *Kingston* class ships, and supplementing MCM detachments. These are activities that can be maintained in peacetime to allow rapid augmentation of the navy by trained personnel at short notice when needed to address any of a wide range of crises. In addition, the naval reserves provide another service that cannot be over-estimated. Because naval dockyards of necessity can only be located on a seacoast, local reserve units are an indispensable means of bringing the navy home to those Canadians who live far from any of the three oceans.

It is because of this geographical paradox that some Canadians are unaware of their navy, and do not understand where "naval" fits into a "national" strategy. Although Canada occupies the northern half of an essentially island continent,

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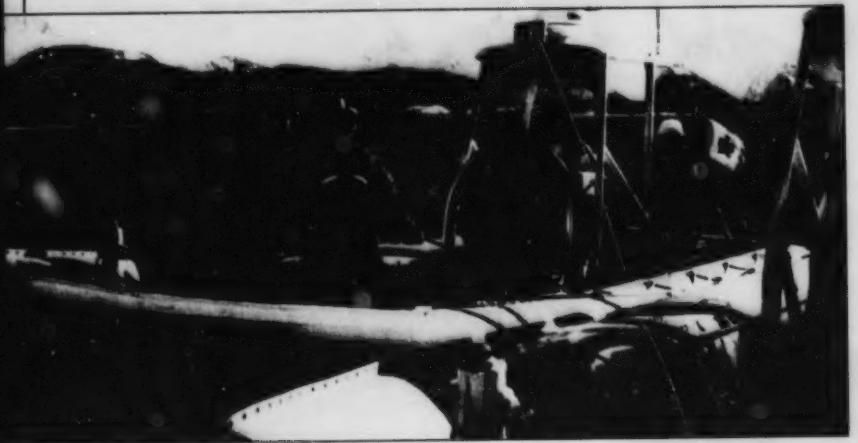
[22] Not withstanding the CF's requirement for solely a repair and maintenance capacity, the current Federal government policy is that all Canadian government vessels will be procured, repaired and refitted in Canadian shipyards (providing a competive process can be followed). See statement by Mr. John Cannis (MP-Lib) on the Government's official shipbuilding policy. See House of Commons, *Debates [Handsard]*, 23 November 1999; also at http://www.parl.gc.ca/36/2/parlbus/chambus/house/debates/026_1999-11-23/han026-e.htm. See also, *Breaking Through: The Canadian Shipbuilding Industry* (Ottawa: Industry Canada, 2001); and *Government Response to the Fourth Report of the Standing Committee on Industry* (Ottawa: Industry Canada, 2000), pp. 27-28. Both reports are available at http://strategis.gc.ca.



Indigenous Capacity — Canadian Naval Reserve Port Security Team — CANUS: Exercise Northern Edge 1999 *(USNAVAK)*

the natural inclination to a continental mentality and the disappearance of a substantial Canadian-flagged merchant fleet means there is little appreciation of the volume of trade that is dependant upon the sea. Even now, as a country, Canadians remain susceptible to the appreciation — just as they did a century ago to the not unrelated concept of imperial defence — that "someone else will see to it anyway." But, the fact is that no other state will see to the protection of our ocean resources (especially if they are in competition for them) or to the security of our maritime frontiers before moving on to collective action. Just as it happened in the past world wars, Canadians again may be compelled to participate in a conflict to secure the freedom of the seas for the collective good. The present type of peace support operations to which Canadian Forces are committed does little to reinforce the notion that armed forces first and foremost are an insurance against aggression. Given that most disputes are over land or on foreign territory, Canadians tend to think of solutions in terms of land-based capabilities. They often do not fully appreciate the extent to which the security of the offshore estate is dependent upon surveillance and presence, or how much international solidarity is bolstered by the dogged enforcement of economic sanctions, or the degree of confidence-building that results from the inclusion of non-traditional allies in multinational operations. When considered in this light, the words of Mahan (writing of the army of Napoleon and the ships of the Royal

Navy) take on a different context: "Those far distant storm-beaten ships, upon which the Grand Army never looked, stood between it and the dominion of the world."[23]

The Canadian navy may have to accept that this lack of visibility will remain a challenge. Although it is not a principle as such, an effective strategic communications plan must fill the critical need of transmitting the message of the relevance of the navy to the nation. This education must be extended not just to the general population, but to all levels of government. Within the navy, Canadian sailors, airmen and airwomen must appreciate the value of doing their job. The other elements of the CF and DND must recognize the range of capabilities that the navy can bring to joint operations. Other government departments must see the possibility for greater coordination (beyond fisheries and drug patrols), to effect a true national maritime strategy. Politicians must be made aware of the range of options a navy brings to crisis management, at minimal human cost.

CORE CANADIAN NAVAL COMPETENCIES

In the discussion above, the general principles of a medium power naval strategy have been developed to demonstrate their applicability to the specific Canadian context. An underlying theme is the continuing relevance of the task group concept — the task-tailored mix of capabilities brought together in a variety of surface, sub-surface and aerial platforms. The defining characteristics of a naval task group are precisely those that the Canadian Forces have identified as fundamental to the concept of tactically self-sufficient units (TSSUs):[24]

- They "must be capable of integrating into a Combined Force package as a 'task-tailored' component."
- They "must be modular and adaptable, capable of integrating with other international and national forces that are likely to be involved in a joint and combined operation."
- The "minimum requirement of the TSSUs will be that they can at least conduct [mid-level] operations. This in turn requires that TSSUs have adequate combat capability including suitable self-defence and reasonable offensive capability."
- "... a TSSU must be able to make a military contribution sufficiently relevant that it can be identified as Canadian."

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[23] Quoted in Joseph Schull, *Far Distant Ships: An Official Account of Canadian Naval Operations in World War II* (Ottawa: King's Printer, 1950 [reprinted, Toronto: Stoddart, 1987]), p. vii.

[24] *SCP*, pp. 18-19.

The task group concept provides the framework within which the technical, doctrinal and organizational elements of the RMA can best be realized in a naval context. Such a structure provides the Canadian navy with the flexibility required to contribute most effectively to the success of the missions that it will be assigned well into the 21st century. And the principles of a medium power naval strategy with both domestic and expeditionary imperatives — and hence those principles that should drive the development, sustainment and employment of Canadian naval task groups in 2020 — are at the essence of the three core competencies introduced in Part 2.

The first core competency, ***to generate and maintain credible combat forces***, speaks to the notion that each independent state must possess some ***indigenous capacity*** to produce and sustain its own armed forces. These forces must be ***versatile and combat capable*** if they are to undertake even the most basic of functions with any credibility. They must satisfy the basic naval concept, **to float.**

Implicit in the second core competency, ***to be able to provide sea-based service support*** and co-ordination, is the notion of ***freedom of the seas***. This in turn is fundamental to the ability to ***influence events at a distance***, and fulfils the basic naval concept, **to move**.

The third core competency, ***to know what is going on in real time and to be able to act with a wide range of conventional force options***, arises from two principles of medium power naval strategy: naval forces must be ***versatile and combat capable*** in order to contribute effectively ***across a wide range of operations***. The ultimate object is to do so as the ***Joint Enabler*** of joint and combined land and air forces. The national will to remain engaged internationally means that Canadian naval forces will operate in ***alliances*** or ***coalitions*** with the forces of like-minded nations. To ensure the most effective contribution, Canada's navy must seek and maintain a high degree of ***interoperability*** with those joint and combined forces. This competency evokes the basic naval concept, **to fight**.

CONCLUSION

In a multi-polar and interdependent world, the strategic horizons of medium powers are likely to broaden. Being unable to prepare for all contingencies, however, they will continue to view collective security as necessary. Indeed, if the coalition efforts of the 1990s in the Persian Gulf and NATO operations in the Adriatic Sea are any guide, naval force may become as favoured an instrument of security for the medium powers as it traditionally has been for the major maritime powers. Moreover, protection of the offshore estate will acquire a new salience, particularly for those medium powers — like Canada — with significant economic zones or archipelagic claims. Inevitably, these states will begin to define their maritime security interests in increasingly national terms, resulting in general-purpose rather than specialised forces.[25]

This Part has revealed the broad roles and subsidiary functions of a **medium global force projection navy** that are required to **defend** Canada's national and allied commitments, **support** Canadian foreign policy, and **secure** Canadian sovereignty. The principles of a medium power naval strategy and the core competencies of Canada's Navy After Next also have been developed. With this knowledge in hand, it is possible to articulate a clear and concise strategy that establishes the ***Leadmark*** to which Canada's navy should steer on its course into the 21st century:

> ***The Naval Strategy for 2020: The Canadian navy will continue its development as a highly adaptable and flexible force, ready to provide the government with a wide range of relevant policy options across a continuum of domestic and international contingencies up to mid-level military operations.***
>
> ***The navy will generate combat capable forces that are responsive, rapidly deployable, sustainable, versatile, lethal and survivable. Canada's naval forces, from individual units to complete Task Groups, will be tactically self-sufficient and be able to join or integrate into a joint, US or multinational force, anywhere in the world. The navy will enhance the capability to deploy Vanguard elements for crisis response and to support the rapid deployment of the Land and Air Main Contingency Forces.***

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[25] Adapted from Commander S.C, Bertrand, "After the Cold War: What Relevance a Navy?", in *Canadian Forces College Review 1991 Revue du College des Forces canadiennes*, p. 28.

7

PREPARING THE NOTEBOOK:

Future Naval Capability Requirements

7

PREPARING THE NOTEBOOK:

Future Naval Capability Requirements

Having articulated a Canadian naval strategy for the 21st century, the *Leadmark* strategic planning process is completed by identifying and defining those operational capabilities essential to the implementation of that strategy. This is done in the context of the force development process of the Canadian Forces, and from the premise that all navies must incorporate to some degree the three core naval competencies – *float, move, fight*. Indeed, one element of the ranking of naval forces in Part 3 is the degree of incorporation of these core competencies and the propensity of their governments to employ them. Essentially, the higher the standing of a navy, the greater its sophistication in their acquisition, implementation and employment. This part provides strategic guidance in interpreting the capabilities that will be required by Canada's Navy After Next to fulfil the roles and functions of a medium global force projection navy in the anticipated operating environment of 2020.

Before undertaking a passage, the prudent Navigator prepares a notebook with the details of all of the related factors. In the case of *Leadmark*, among the primary considerations are the broad policy direction of the *1994 Defence White Paper*, the strategic objectives of *Strategy 2020*, an assessment of the future strategic and military environments, and the Capability Goals matrix of the *Strategic Capability Planning for the CF (SCP)* document. This latter item (illustrated in Figure 7), promulgated as a central planning matrix from the perspective of a joint force (that is, it also incorporates those capabilities required by the air and land forces), is especially important. It provides general guidance on the broad types of capability categories required of any generic medium power military force, imposing a Canadian context through a more refined appreciation of the level of overall national capability required in each area. It recognises also that there is a distinction between domestic and international operations, either of which might require a higher or lower degree of capability than the other, depending upon the situational context.

The broad capability goals for the Canadian Forces in 2020, as prescribed in the *SCP*, are given in terms of High (H), Medium (M) and Low (L), defined as follows:[1]

High: Independent Canadian military capability necessary.

Medium: Fully able to take part in joint and combined operations. May (if necessary) be able to assume a leadership role. Effective interoperability with major allies is considered a necessary minimum requirement in this capability area.

Low: Fully able to take part in joint and combined operations but not to assume a leadership role. Partial interoperability would suffice as a minimum requirement in this capability area.

It must be emphasized that the capability goals (H-M-L) indicated in the matrix are an aggregate of the overall CF requirement and are not prescriptive as to the capability level to be achieved by any one service. As such, it is entirely possible that the goal sought in any particular area by individual services may be less than, or exceed, the desired CF capability level. Notwithstanding this fact, the Capability Goals matrix indicates the overarching requirements of the Canadian Forces in any particular area and, as such, acts to provide broad guidance in determining the degree of investment required and the priority to be accorded this investment.

FIGURE 7[2]
CAPABILITY GOALS FOR THE CF

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Military Strategic	H	H	L	H	L	L	M	H
Operational (Domestic)	H	H	M	M	M	M	M	M
Operational (Int'l)	M	M	L	L	L	M	L	M
Tactical	M	M	M	M	M	M	M	H

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[1] These definitions are modifications of those found in the *Long Term Capital Plan (Equipment) – Draft 3* (Ottawa: DND, June 2000). They continue to be under development; these were prepared in cooperation with the Directorate of Defence Analysis (DDA) and have been adopted for interim use in *Leadmark*.

[2] The Capability Goal Matrix construct is still under development. This table portrays the state of the Matrix at the time of *Leadmark*'s publication. The process undoubtedly will undergo further revision.

Yet, future requirements must be tempered by the realisation that resources will always be finite, and that there is a limit to the military contribution to operations (short of general war) that Canada and its armed forces can make. Indeed, as stated in the *SCP*, the size and nature of the Canadian Forces will be such that they will rarely operate independently at the strategic or operational level. Rather, it is at the tactical level that the CF most often will participate internationally. In the case of naval forces, a Tactically Self-Sufficient Unit (TSSU) may vary in composition from a single unit of a particular type of platform to an entire Task Group (TG), the actual composition of which will depend upon the mission requirements. The key factors in this determination will be the ability of the selected TSSU to perform the required mission in an effective manner, without undue assistance from the forces of other countries, and to be clearly identifiable as Canadian.

Accepting the concept of capability-based planning, it follows that naval forces will embody a collection of tactical capabilities that are supported by a wide range of enabling capabilities at the strategic, operational and tactical levels. The strict tabular presentation in the matrix, however, gives no clear appreciation of the prioritisation of resources, other than the assignment of H-M-L. *Leadmark*, as such, is critical to the capability-based planning process, in providing an over-arching framework within which naval force developers can identify those capabilities that are needed to fulfil Canadian naval functions — and, perhaps just as importantly, identify those that are not required.

However, while the co-relation of the CF Capability Areas to the Naval Core Competencies is close, it is not direct. This is due, in part, to two factors. First, the nature of operations at sea does not allow for easy division of capabilities into separate categories of "Conduct", "Mobility", "Protect" and "Sustain". For example, the mobility of a surface task group is directly proportional to the degree of underway sustainment provided by fleet replenishment ships, which may require a high level of self-defence in order to support widely dispersed fleet units. From these other fleet units, in turn, is generated the overall capability of the task group to conduct operations, such as force defence and support to other forces.

Second, because the CF Capability Based Planning process is still undergoing development, it is not yet fully mature. As a result, it was not possible to follow that process rigidly in the development of *Leadmark*. It is introduced here principally to show that the maritime force development process is firmly linked to the overall CF process. As indicated in Part 2, a follow-on document to *Leadmark*, the *Maritime Commander's Strategic Capability Planning Guidance*, will make extensive use of the capability based planning framework in developing the bridge between the conceptual guidance provided here and the short-term targets established in the annual Maritime Command business plans. These follow-on documents will provide the level of detail required by the Maritime and Air staffs (and in particular those in the requirements sections) to implement a rational process for the Horizon 2 (5-15 year) timeframe. This Part of *Leadmark*, therefore, will serve to translate the Naval Core Competencies into the CF Capability Areas, through the mechanism of ***competency components***, as seen in the following diagram (and as will be discussed below):

FIGURE 8

RELATION OF NAVAL COMPETENCY COMPONENTS TO CF CAPABILITY AREAS

Basic Naval [illegible]	Naval Core Competencies	Competency Components	CF Capability Areas
FLOAT	• To generate and maintain credible combat forces	• Force Generation • Sustainment (Resources Maintenance)	• Force Generation • Sustain Forces • Corporate Strategy and Policy
MOVE	• To provide sea-based service support and co-ordination	• Sustainment (Operational) • Sealift	• Mobility
FIGHT	• To know what is going on in real time and to be able to act with a wide range of force options	• C4ISR • Self-Defence • Organic Air • Force Defence • Sealift • Naval Fire Support • Gateway C4ISR • Tailored Capabilities for OOTW	• Command • Information and intelligence • Conduct operations • Protect Forces • Corporate Strategy & Policy

This allows us to return, then, to the issue at hand: what are the capabilities that the Canadian navy will require — and to what level — to fulfil the roles and functions of a medium global force projection navy in 2020?

The fundamental national requirement to ensure sovereignty over Canada's oceanic estate will demand that the navy retain the ability to exercise effective command and control, intelligence gathering, surveillance and reconnaissance beyond the limits of the exclusive economic zone. Exercising effective control of this vast territory will further demand a self-defence capability, as well as a capacity to provide and maintain these forces at a sufficiently credible level of competency to deter interlopers and (or) defeat aggressors. In order for any future effective naval force to meet these basic critical demands, several competency components have been identified. Specifically, they are categorised as:

- C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance);
- Self-Defence;
- Force Generation;
- Sustainment; *and*
- Organic Air.

These general or foundation components of the core naval competencies will be required to establish legitimacy as a "navy". Without any one of these **basic competency components**, any national sea-going forces would qualify only as a Rank 9 Token Navy, or a Rank 8 Constabulary Force. In the unique case of Canada, given the expanse and challenges of the Canadian maritime security environment, fulfilling all of these basic competency components to the minimum effective level would be sufficient only to result in a Rank 6 Offshore Territorial Defence Navy. However, again given the unique Canadian operating requirements shaping such a force, the resultant navy would have some ability to contribute to overseas international crisis management, but the scope of such contributions would be extremely limited and clearly constitute a token effort.

But successive governments have determined that such token participation in coalition naval operations is not in the best interest of Canada and the place that it has identified for itself in the world. That place consistently has called for a Rank 3 Medium Global Force Projection Navy. To meet those obligations, any future force must be able to fulfil, independently, certain functions in defence of Canadians and in support of Canadian policy overseas. It must also be able to offer capabilities that will add value to the crisis management operations to which it is assigned. If not, Canadian leaders will have little hope of (or entitlement to) participation in the decision-making process, either operationally or politically, regarding the conduct of coalition operations. The competency components that will facilitate the achievement of a meaningful contribution — whether to independent Canadian operations or to those conducted with international alliances or coalitions — are those that will act, in effect, as **force multipliers**. They add value beyond the cost of their investment to the navy's contribution to joint and combined operations:

- Force Air Defence;
- Force Under Water Warfare (UWW);
- Sealift;
- Naval Fire Support; and
- Gateway C4ISR.

In determining the priority given to these competency components, it is acknowledged that Canadians will remain committed to promoting international peace and security. Accepting also that resources will be limited, it is critical that choices be made to ensure the navy delivers the greatest return on investment. The argument that the maximum value for expenditures can be achieved by the adoption of niche force roles is seductive from the standpoint of acquiring capability for potentially limited cost. These tend, however, generally to be support functions. Whatever their operational utility, their political value would not promise sufficient return on a large investment. Besides, an over reliance on delivering support would deny Canada the necessary force structure to unilaterally assert national sovereignty and security claims. Resource efficiency can be achieved more appropriately by building upon those areas in which the navy already has considerable competence and expertise, as will be described in the discussion below.

For the most part, a multi-purpose, combat-capable naval force structure will be achieved through the balanced acquisition of the capabilities identified above. Once all necessary combat capabilities have been achieved, remaining resources could be directed towards capabilities without any war-fighting application. This additional area for consideration, in a category by itself, is:

- Tailored Capabilities for Operations Other Than War (OOTW).

Finally, it is useful to identify those capabilities that will **not** be pursued for the Navy After Next. Several of these have been mentioned previously in *Leadmark*; others are intuitively obvious. They are capabilities either more appropriate to a Major Global Force Projection Navy, or not required for the defence of Canada and that will be brought to expeditionary operations by other allied or coalition partners, or requiring non-conventional weapons that would be against Canadian treaty obligations:

- Strategic attack;
- Amphibious assault;
- Maritime pre-positioning;
- Fleet Air (carrier) capability;
- Force Mine Countermeasures (MCM);
- Offensive and defensive mine-laying;
- Nuclear, biological and chemical weapons; and,
- Submarine salvage.

The remainder of this part, then, is given over to a description of each of the naval competency components that have been identified as future requirements of the Navy After Next, and to an explanation of their importance and application. They are offered in groupings of *basic competency components* and *force multiplier competency components*, and a review of their defining characteristics will conclude each section.

FUTURE REQUIREMENTS

Basic Competency Components

C4ISR — Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance

There is a tremendous synergy to be derived from the fusion of the separate capabilities of the elements of C4ISR and the coincident fusion of doctrine and technology. Success in optimising it will be perhaps the single most important capability that will allow Canadian naval forces to provide viable support to national and multinational objectives. With the clearly established objectives in *Strategy 2020* for greater interoperability and modernization, a guiding principle of future force development will be achieving "seamless operational integration at short notice,"[3] with our major allies (and the USN, in particular), in these key areas of warfare.

As key components of the RMA, the integrated battlespace, Network-Centric Warfare (NCW)[4] and the ability to participate in Co-operative Engagement Capability (CEC)[5] are emerging as essential elements in the conduct of future operations. All serve to reinforce the fundamental importance of the C4ISR competency component. This speaks to the further direction in *Strategy 2020*,

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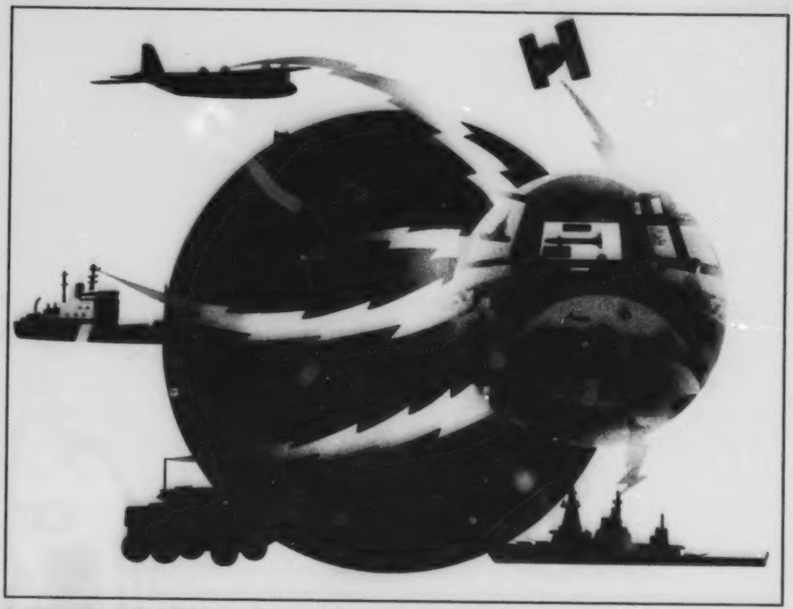
[3] *Strategy 2020*, p. 10.

[4] Network-Centric Warfare derives its power from the networking of a well-informed but geographically dispersed force. The enabling elements are: a high-performance information grid; access to all appropriate information sources; weapons reach and manoeuvre with precision and speed of response; value-adding C2 processes (to include high-speed automated assignment of resources to need); and integrated sensor grids closely coupled to shooters and the C2 process. See Arthur K. Cebrowski VAdm (USN) and John J. Garstka, "Network-Centric Warfare: Its Origin and Future," in *United States Naval Institute Proceedings*, 124:1 (January, 1998), pp. 28-35.

[5] This concept envisions the combination of a high-quality sensor grid with a high-performance engagement grid. The sensor grid fuses data from multiple sensors on a variety of units to develop a composite track with engagement quality. This means that units that themselves may not have generated fire control solutions, detected the intended target, or are subject to jamming can be made aware of and engage a target. CEC is also envisaged as allowing the commander to have centralized operational control of all connected weapon systems, with the goal being that CEC will also have the ability to conduct engagements in an automated mode. See David S. Albert *et al*, *Network Centric Warfare: Developing and Leveraging Information Superiority* (Washington D.C.: DoD C4ISR Cooperative Research Program, 2nd ed. 2000), pp. 170-72; Cebrowski and Garstka, "Network-Centric Warfare: Its Origin and Future.".



Common Operating Picture — Near real time evaluation and dissemination.

for the Canadian Forces to nurture Canada's unique relationship with the United States by sharing the burden for global sensing and telecommunications. A review of the literature generated by the United States armed forces and other allies makes it clear that the acquisition, integration, and analysis of information and intelligence to generate a comprehensive "picture" of the operating environments of the future is vital. Equally important will be the ability to provide this Common Operating Picture (COP) to all levels of command for use in the decision-making process. Alternatively, not being able to link into and contribute to C4ISR would significantly reduce the utility of any Canadian contribution to multi-national operations.[6]

A significant national application would be to upgrade the Recognized Maritime Picture (RMP) that the navy presently produces and makes available to various other government departments. The growing array of asymmetrical threats to

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[6] For example, although the Canadian navy's contribution to the Gulf War consisted of three relatively inappropriately equipped ships, the Canadian TG commander was the only non-American Warfare Commander. This was largely a result of the compatibility and interoperability of the C4ISR capabilities of the Canadian ships with both the American and major coalition naval forces in the theatre. See Morin and Gimblett, *Operation Friction*, pp. 182, and 193-97; Miller and Hobson, *The Persian Excursion*, pp. 113-120.

North America will require the development and distribution of this national Common Operating Picture, along with the existing NORAD system, into a truly comprehensive continental network. Such a COP will require that future C4ISR systems and sensors be multi-dimensional and networked. This will allow for inputs from a variety of air, sea and space-based assets,[7] their processing as an integrated data stream for the automated development of a fused picture, and the provision of a transparent and seamless transfer medium to users. Advances in decision-making technology will convert this information data into true "knowledge". As with all C4ISR systems, they must adopt an open architecture design to ensure interoperability with land and air forces (joint), allies (combined) and OGDs. They must also incorporate a potential for growth to ensure that they are not rapidly outdated.

An integral component of this capability will be generating an effective level of Intelligence, Surveillance and Reconnaissance (ISR). The increasing sophistication of signature reduction technology and the more difficult littoral-operating environment will increase the challenges of detecting and identifying Targets Of Interest (TOI). Accordingly, future C4ISR systems must be capable of automated detection, localisation, tracking, and targeting to a level that will allow control systems to readily and automatically engage, if so desired by the commander. In situations when more detailed and precise information will be required than can be achieved through intelligence or surveillance abilities, robust and reliable reconnaissance assets and doctrine will be required.[8]

The vast size of the Canadian area of responsibility in home waters alone will challenge the development of a comprehensive ISR capability.[9] Still, although large, the area of interest is constant, and therefore fixed surveillance systems can greatly assist in its monitoring. (All the same, these systems may well be in remote locations and therefore will require a reliable communications link to the end user.) The same general requirements exist for international deployments, where the area of interest will likely be smaller, but rarely as familiar. In this case, while there may be local fixed systems the availability of such systems to Canadian forces cannot be guaranteed. As a result, naval forces will require versatile and easily deployable surveillance and reconnaissance systems. Although technological interoperability with allies theoretically may allow access to their systems, there is no guarantee that it will be granted, or that when granted, it will not be limited or the information "sanitised" to some extent. Therefore, to avoid over-dependence on foreign sources, Canadian naval forces and national command authorities will require integral and independent ISR information to the greatest practicable extent.

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[7] Intelligence resources will include signals intelligence (sigint), imagery support, undersea surveillance systems, environmental information (oceanographic and meteorological) systems, tactical deployed systems, and information provided by joint forces, allies, OGDs and commercial sources.

For many of the same reasons, a national command, control and communications system with world-wide capabilities will be required. The direction in the SCP, for a High or independent national capability at the military strategic level in this area is especially pertinent for Canadian naval forces, which commonly are deployed on missions around the globe. Whether engaged in joint or combined operations, Canadian naval commanders must be able to advise national and multi-national level commanders regarding Canadian military options, regardless of where they are deployed. Canada cannot rely on allies to perform this task. At the operational and tactical levels as well, this will remain a critical area for maritime forces, given the vast maritime areas of responsibility for surveillance and defence, and the limited number of assets likely to be available for reactive operations.

Given the rapid pace at which situations can develop and the risk that such a pace entails, in particular in a potentially hostile environment, the ability to have real time "connectivity" at all levels of operations will be critical. The timely availability and accuracy of information will allow commanders to plan and act quickly. Therefore, it will be important that naval forces not only have assured access to C4ISR systems, but also that these systems be resistant to interference. In addition, the navy will need to be able to access both military and commercial communication capabilities. It is likely that there will be an increased reliance on space-based assets in fulfilling many of the requirements for C4ISR. Yet, given the need for independent national assessment, evaluation and decision making, the systems so utilised must also possess multi-level security features to avoid compromise.

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8 In the past, surveillance and reconnaissance assets often were separate platforms. Surveillance assets tended to be used to cover a large area and provide general information with regards to activities within the area, such as the presence of contacts. Reconnaissance (generally carried out by a separate platform) was often required to positively identify targets of interest and to provide greater detail on activities or to conduct tracking or targeting. The distinction is lessening with the projected capabilities of some assets (such as satellites or Long Range Patrol Aircraft) to provide either general wide-area information or detailed information of great resolution. In future, the difference between surveillance and reconnaissance will be more the doctrinal issue of when and how the asset is employed to fulfil a particular role, rather than the operational decision of which asset to use.

9 Canada has the world's longest coastline and currently claims political sovereignty and economic jurisdiction over more than 6 million square kilometres of ocean in the Atlantic, Pacific and Arctic (*Adjusting Course*, p. 12n [which refers to Herbert, *Canada's Oceans Dimensions*]). The navy is largely responsible for the surveillance of this area and the development of a Recognised Maritime Picture (RMP) that is shared with other government departments.

C4ISR is a central element of naval activity. Across the full spectrum of operations — from peace to war — it is critical to determining the situation, influencing the actions of our forces, and imposing our will on the adversary. It is the primary tool commanders use to cope with the disorder and uncertainty of warfare. It is the means by which commanders synchronise actions in time, space, and purpose to achieve unity of effort within a military force. Effective C4ISR is not a substitute for superior ships, people or systems. It is, however, and will continue to be, the link between these three, and thus the key to exploiting these capabilities at critical times and places, to ensure the success of the Navy After Next in maritime operations.[10]

C4ISR Defining Characteristics

- Multi-dimensional surveillance and reconnaissance ability.
- Automated detection, localisation, tracking and targeting ability.
- Integrated ISR capability with automated development of a fused Common Operating Picture (COP).
- Transparent and seamless transfer medium making use of global coverage from fixed and deployable C4ISR systems.
- Ready access to military and civilian sources of intelligence, information and communications.
- Interoperable C4ISR system (joint and combined).
- Open architecture design and growth potential for C4ISR equipment.
- Integral, independent national strategic level C4ISR system based on global coverage from fixed and deployable (interoperable) systems.
- Real time connectivity at all levels (strategic, operational and tactical).
- Interference resistant, multi-access and multi-level security systems.
- Appropriate doctrine and highly trained personnel for collection, collation, analysis and distribution of ISR.

Self-Defence

The need for war-fighting forces to possess a self-defence capability is, to a large extent, self-evident, in that survivability is essential to the safety of personnel and completion of the mission. Although many of the tasks assigned to naval forces may not require such a capability, their probable deployment to areas of tension requires at least an ability to protect themselves in the event hostilities occur.[11] The direction in the SCP that Canadian tactically self-sufficient units be prepared for employment in mid-intensity operations means that they will need a level of self-defence commensurate with the risk to which they are likely to be exposed. The essence is that different types of units, employed on various missions, will require differing levels of self-defence. Wherever Canadian naval forces may be deployed, they must be able to defend themselves effectively, while maintaining the capability to conduct operations in order to achieve mission goals.

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[10] Adapted from *The Canadian Navy's Command And Control Blueprint To 2020* (Draft) (Ottawa: Directorate of Maritime Project and Policies Development, July 2000), p. 3.

[11] For example, although not engaged in hostilities, NATO naval forces enforcing the sanctions against the Former Republic of Yugoslavia (FRY) in 1993 were concerned that, should they enter Montenegrin territorial waters, they would have to be wary of mobile coastal missile sites, coastal artillery, missile-fitted frigates and fast patrol boats, conventional submarines, a variety of aircraft and an extended mining capability. See Commodore G.R. Maddison, "Operations in the Adriatic," in Peter Haydon and Ann Griffiths (eds), *Multinational Naval Forces* (Halifax NS: Dalhousie University Centre for Foreign Policy Studies, 1996), p. 200.

Regardless of the role and risk involved, a unit's self-defence capability will need to be multi-dimensional in nature. The potential threat to naval units may come from air, surface, subsurface, space, or electromagnetic environments. It may come in the form of attacks by traditional kinetic weapons such as bullets, bombs, missiles, mines and torpedoes. It may also come in the form of non-kinetic methods such as electronic, electro-optical, acoustic, Electro-magnetic Pulse (EMP), information attack, or even in the form of Nuclear, Biological or Chemical (NBC) weapons (sometimes referred to as a variant of Weapons of Mass Destruction, or WMD). To counter these threats, modern and effective defensive measures will be required.

Weapon systems and platforms of a variety of types and capabilities are widely available throughout the world.[12] Ranging from relatively old and simple systems to the latest cutting edge technology, their proliferation is unlikely to subside in the future, and the capabilities of these weapons systems will continually improve. Many are compact enough to be fitted on relatively small vessels and aircraft. Others are capable of launch from shore-based sites. The spread of supersonic versions of anti-ship missiles, and the increasing stealth of those and other weapons, will make reaction time for defence even more crucial than it is currently. Also to be considered in the development of self-defence capabilities is the fact that operations in the littorals will expose surface, subsurface and air units to a variety of weapons not normally encountered in an open ocean environment, such as land-based surface-to-surface and surface-to-air missile systems, and a wide range of underwater mines.

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[12] See United States, *Challenges to Naval Expeditionary Warfare* (Office of Naval Intelligence, March 1997). For example, this publication states that more than 75 countries possess over 90 types of anti-ship cruise missiles, some 60 countries have torpedoes in inventory comprising over 60 types, while in excess of 150 types of mines are held in the stocks of over 50 states. There are also a variety of land based systems to be considered by naval forces operating in the vicinity of land.

Multi-dimensional self-defence.

With this proliferation of modern technology, many states that previously posed only a limited threat may well possess modern and very capable methods of attacking naval forces. In many instances, high-technology weapons have permitted these military forces to leap forward several generations in weapons capability in the span of a few years. Although few states are likely to be capable of posing a large-scale, traditional blue water threat, operations in the world's littorals will lead naval forces potentially to face a growing number of threats, all far more deadly than generally were perceived during the Cold War. Increasingly, these new capabilities will have to be taken into consideration when planning for, and participating in, operations in support of international security. Moreover, some terrorist and criminal organisations undoubtedly will have the capacity to operate naval platforms. Even when operating in national or North American waters against supposed non-military threats, the dangers posed to personnel and units have increased in recent years. This trend is expected to continue.

Defending against the various threats will require both a multi-dimensial and a layered approach employing a variety of systems optimising detection, "hard kill", "soft kill", and avoidance capabilities.[13] No one system will suffice. Moreover, given the projected capabilities of future weapon systems, the self-defence envelope must expand well beyond the 7-10 nm area around each surface platform that is the accepted norm today, if a unit is to have any chance of defending itself successfully. Key to providing a suitable self-defence capability will be an effective and early detection ability. As such, the key characteristics of these self-defence systems will be speed, range and precision. In the case of hard kill weapon systems, the additional characteristic of lethality also will be important.

Although avoiding or defeating the incoming weapon can be effective in many instances, concentration exclusively on this method easily could lead to a unit being subjected to repeated attacks and eventually being overwhelmed. At the very least, it will be distracted from accomplishing its mission. Therefore, the ability to deter — or, if necessary, to engage and defeat — an attacking unit also must be recognised as a vital part of a robust self-defence capability. It also will allow Canadian naval forces the flexibility to apply a level of force appropriate to the situation. This is because, more than simply needed to ensure self-defence, an ability to engage attacking at longer range results, *de facto*, in a limited offensive capability. Hard kill air defence systems, by their very nature, tend to have the ability also of engaging airborne launch platforms. Effective anti-surface and anti-submarine weapons with a stand-off capability will allow surface and sub-surface units an extra a measure of effectiveness in preventing initial and continuing attacks on themselves. This is fully supported by the *SCP*, in its call for a "reasonable offensive capability" for TSSUs.[14] As such, this flexibility allows naval units not only to defend themselves, but also to take the initiative in asserting and enforcing national or coalition authority, as necessary. Indeed, it is this ability to make use of a "defensive" necessity for "offensive" purposes that enables naval forces to fulfil effectively such functions as MIO, sea denial, or sea control.

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[13] Hard kill systems are those that physically destroy the attacking weapon. Soft kill systems are those that seek to defeat the attacking weapon by diverting it from the intended target through the use of deception, seduction or confusion methods.

[14] *SCP*, p. 19.

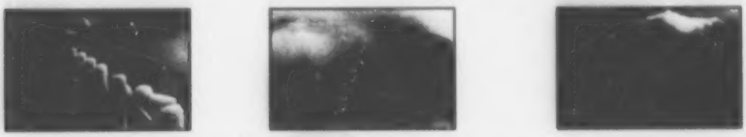
Avoiding detection and (or) reducing the ability of hostile weapons systems to achieve a targeting "solution" also are part of a self-defence capability for naval units, and these can be enhanced in a number of ways. The expanded use of stealth design methods and materials in the construction of platforms will be one way; the further adaptation of various emission suppression systems will be another; and the imposition of a rigorous signature control process will be a third. Since the 1950s, Canadian naval vessels have incorporated defensive nuclear, biological and chemical warfare (NBCW) capabilities in their designs. These self-defence features allowed them to operate in a contaminated environment for a limited time without undue risk to naval personnel. Continued adherence to the latest developments in this area of design will remain a valid requirement in light of the increasing number of states and organisations that have, or are likely to gain, access to a WMD capability.

Despite the provision of these various design features, it must be acknowledged that, due to the nature of their employment, maritime air and naval forces may well incur damage from enemy action or the environment. Therefore, "self-defence" must go beyond merely the defence of a platform. It must include also the defence of individuals. Although not often thought of as a self-defence measure, naval units must be provided with advanced methods of containing and minimising any damage they might receive. This will include improved individual protection from NBC hazards, and the necessary training of personnel to utilise effectively these measures. Platforms operating with smaller crews than is currently the norm will require appropriate damage control and fire-fighting systems and precautions.

Greater attention also will have to be paid to the defence of information systems. In addition to traditional physical security measures, and encryption and anti-jamming features, the definition of self-defence must be broadened to incorporate concern regarding the spread of electronic communication methods, integrated networks, and computer systems and the increasing reliance on them. Thus, defensive measures will need to include considerations of such things as anti-virus protection and secure transmission methods.

Self Defence Systems Capabilities

- Multi-dimensional — to provide layered defence from air, surface, sub-surface, space, land-based and electromagnetic threats.
- Capable of providing defence against kinetic, electronic, electro-optical, acoustic, EMP, nuclear, biological, chemical or information attacks.
- Early and effective detection and reaction ability.
- Multiple automated systems, incorporating sophisticated decision support systems, integrated to work seamlessly in a multi-dimensional environment.
- Active soft and hard kill systems to engage and defeat attacking weapons and weapon delivery platforms at range.
- Hard and soft kill systems with speed, range and precision.
- Lethal hard kill systems.
- Incorporated passive self-defence systems to reduce probability of detection and acquisition: stealth design, emission suppression systems, emission control training and doctrine.
- Platforms designed to sustain and minimise battle damage. Incorporated survivability systems: NBCW systems, fire fighting systems, damage control systems, redundancy and survivability of vital equipment and systems.
- Protection of information systems through encryption, anti-jam and anti-virus abilities.
- Appropriate level of defence for platform and anticipated type of employment.
- Reasonable offensive ability to engage and defeat hostile weapon platforms in addition to hostile weapons themselves.



The Maritime Environment *(LS Moses* — HMCS Ville de Quebec*)*

Force Generation (Resource Acquisition)

The notable characteristics of Canada's maritime geography are its great area, its formidable harshness, and its challenging complexity of undersea features. These characteristics, combined with Canada's world-wide commitments, will continue to dictate the need to acquire naval and maritime air units capable of operating effectively across the gamut of environmental conditions. In order to make optimum use of the technologies and operational concepts that are being developed in response to the Revolution in Military Affairs, and to support the expected high tempo of operations, the navy must continue to improve its acquisition processes and general training.

A fleet is nothing without the infrastructure and shore establishment to support it. Secure dockyards, competent training schools and professional headquarters planning staffs all are essential elements for the generation of a modern naval force. Reaching the right division of resources between the fleet and its shore establishment will be a fine balance.[15] Many states can, and have, acquired modern equipment and raised relatively large forces; however, their inability to match such resource commitments with the necessary high level of training in the operation or maintenance of the equipment, or in the tactical employment of these systems, has resulted in the quick deterioration of any credible capability. In short, "naval technology and weaponry are utterly useless if the techniques of employing them prove wanting."[16]

With respect to the acquisition of equipment, system commonality must be a fundamental element in any project charter. This goal cannot simply be an individual service consideration; where possible, commonality throughout the CF and with Canada's allies must also be an acquisition driver. The use of common systems will decrease specialised training, decrease inventory, increase the number of trained personnel, and enhance the flexibility of manning within the navy and (in some cases) within the CF as a whole. The equipment acquired in the future must also be technologically versatile. Platforms, systems, hardware and software will need to have growth potential imbedded in them, and new equipment and procedures will need to be adaptable. Wherever possible, open architecture shall be employed in system design and platform construction in a manner that will allow rapid and frequent upgrading in order to maintain effectiveness and currency for as long as possible. Also important will be the need to ensure that adequate stocks of munitions and spare parts will be available when required.

As the cornerstone to Canadian military operations, interoperability must be one of the highest priorities when considering procurement of any new equipment or capability. However, it must not be confused with compatibility. Two pieces of equipment can be interoperable while being quite different in make, look and feel; components from one could not be used to replace components from the other unless they were fully compatible. The adoption of Commercial-Off-The-Shelf (COTS) equipment standards by NATO and affiliated states will allow the purchase of nationally made equipment that will be both technically and operationally interoperable with the other services and allied states. This will make interoperability less of a technical challenge, but more of a political question covering releasibility issues. Notwithstanding the change towards COTS, it will remain necessary from time to time to buy military or government approved hardware from off-shore sources in order to address an interoperability requirement.

Whenever possible, efforts should be made to ensure full support and compatibility with the USN.

In addition to ensuring that an adequate level of initial training will be available for future systems (and their continuing maintenance), the navy must also see to ongoing training. This will include upgrading of skills and knowledge as a result of the latest doctrinal and tactical developments, not only for the employment of systems, but also in the general concepts of modern maritime operations. As part of the development and understanding of modern (and increasingly common) operational doctrine, exchange programmes with allied navies and billets in allied schools (especially staff colleges) will remain important tools, in addition to the maintenance and continued development of domestic military education and training institutions.

The long-term implications to force planning of the human resource component deserve special attention, particularly in a strategic-level document such as

Competent Training Schools — Bridge Simulator — Naval Officer Training Centre, Esquimalt, BC. *(CF Photo)*

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[15] In the two world wars, Canada's navy suffered each extreme of the scale. In the First World War, an efficient staff was built up, but without the ships to be employed effectively. In the Second World War, an over-stretched Naval Service Headquarters had trouble keeping pace with the navy's rapid expansion. Recent experience is more promising. In the summer of 1990, although the Canadian navy had only older ships to despatch to the Persian Gulf, their preparation for the deployment was contingent upon the existence, first of staff officers to identify the requirements for upgrading, second of the availability of modern systems from the Canadian Patrol Frigates then-building, and finally of the dockyard facilities to fit them.

[16] Clark G. Reynolds, *Command of the Sea: the History and Strategy of Maritime Empires*, Vol. 1 (Malabar: Robert E. Krieger, 1983), p. 10.

Leadmark. While financial and materiel resources can be defined in terms of how they are acquired, prioritised, allocated and consumed, people cannot, and will no longer be so easily quantified. People are sentient, have free will, and thus make choices. These differences demand that human resources be treated quite differently compared to the financial or materiel elements of force planning. While the acknowledgement that people are any organisation's most important resource has been growing in recent years, it is still seen by many as more of a catch phrase to soothe the labour force than a reflection of reality. By 2020, that attitude will have changed. Human Resource (HR) strategists now predict that Canadian society will have evolved from a point where people are seen as *resources* to be exploited, to one where people are viewed as *investors*. Where historically the labour market has been dominated by the buyer (or employer), this is expected to shift towards a labour market dominated by the seller (or employee); in other words, a move towards a market place characterised by employees demanding the best return for the investment of their skills.

This change in the employer/employee relationship, combined with the fact that the pool of persons of a militarily useful age is likely to further shrink,[17] means that competition with the civilian workplace for desirable recruits will continue to pose a significant challenge. As part of the solution, future naval units (static and mobile) will need to make use of technology to reduce manning levels. Yet, it is important to note that replacing personnel with technology is generally an expensive proposition; automation is unlikely to prove a cheap answer to recruiting difficulties. At the same time as reducing the number of billets, the navy will need to consider innovative means of attracting the personnel with those critical skills that neither technology nor automation will be able to satisfy.

In this latter regard, the navy will need to become increasingly pro-active and flexible in its recruitment strategy. To address the future "human investor", any 2020 HR policy must be focussed on ensuring employees receive (as a minimum) for their investment of skills all of the following: intrinsic fulfilment; growth opportunities; financial rewards; and service recognition. An HR strategy centred solely on the requirements of the new "human investor", however, is doomed to failure. A successful strategy must also be focussed on providing the organisation with the "right" individuals for the jobs at hand. In the navy of 2020, this will be a work force capable of adapting fully to an increasingly complex and rapidly changing environment; a work force characterised by its ability to process vast amounts of information quickly, and to make informed decisions when faced with a high operational tempo. The "right" individuals will be those with strong systemic

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[17] Capt(N) A. Okros , "Into the 21st Century: Strategic HR Issues" (lecture given to Army Council, 7-8 January 1999).

Specialised Skills — Naval Reserve Route Survey training *(NAVRESHQ)*

awareness, and innovative and decisive characters. The emphasis for our future navy must be on attracting individuals of this quality, rather than simply focussing on the quantity of personnel needed to fulfil vacant billets.

An important part of meeting the navy's future personnel requirements will rest with the development of the naval reserve. As noted in Part 6, the naval reserve does not exist solely as a basis for mobilisation. Rather, reserve personnel will be required to help sustain the types of national military operations in which the CF may be engaged. Increasingly, the naval reserve will provide those skills not (or minimally) held by the regular force. The contribution of the reserves will be essential to the maintenance of the navy's ability to act in an expeditionary manner, in that reserve personnel and assets are, and will remain, an important feature in the Defence of Canada and North America. Their use in fulfilling roles such as Canadian port security, coastal surveillance, and ensuring access to ports and strategic waterways will increase the flexibility and availability of regular force naval personnel and assets for other operations.

The Force Generation (Resource Acquisition) competency component goes beyond the simple ability to purchase modern military equipment. It is the ability to acquire the right equipment and to recruit the right personnel — those with the appropriate backgrounds to effectively perform all tasks and missions assigned to the navy. It also encompasses the ability to provide the necessary level of training and education to ensure the navy will realise the full potential of both equipment and personnel in service in 2020. Furthermore, it entails the development of the necessary staff expertise to be able to effectively manage and employ the forces so acquired. Only through a tailored approach to the recruitment and retention of personnel, along with the adoption of a rational materiel procurement policy, will the navy develop the flexibility and adaptability necessary to ensure the generation of capable and effective forces.

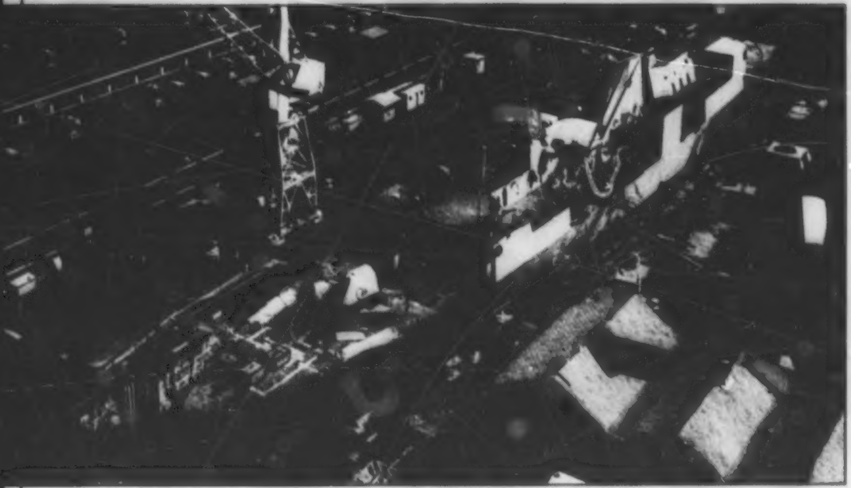
[illegible]

- Innovative HR programs:
  - Focussed recruiting program directed at highly qualified personnel.
  - Rewarding career of choice.
  - Growth opportunities for personnel — training, education, employment.
- Personnel training:
  - First-rate basic and advanced training.
  - Leading edge doctrine — system use, operational concepts.
  - Continued development of national military education and training institutions.
  - Interaction with allied training and higher educational institutions.
- Equipment / Platforms:
  - Improved acquisition process.
  - System commonality — CF wide.
  - Interoperable — joint and combined (particularity with US).
  - Highly automated systems and platforms, with a focus on decision support technology.
  - Technological versatility.
  - Open architecture.
  - Designed to allow for frequent upgrading.
  - Robust design
    - Capable of employment in diverse and harsh environmental conditions.
    - Capable of continuing operations while sustaining battle damage.
  - Capable of exploiting emerging technologies.
  - Reduced personnel requirements.

Sustainment (Resource Maintenance)
Once generated, materiel and personnel must be sustained. This entails the ability to repair equipment, to relieve units and to replace personnel. Where the Force Generation competency component must ensure that equipment acquired will be of a sufficiently robust design to allow extended use in operational situations, the Resource Maintenance competency component must see that the continued availability of this equipment over the span of its design life will be sustained. It will be contingent upon the initial acquisition of sufficient support in the form of spare parts and maintainer training, the existence of adequate repair and maintenance facilities, and that these be manned by highly motivated personnel with the necessary technical skillsets.

Indeed, the historical experience of the Canadian navy offers a strong rationale for the maintenance of broad-based levels of national support infrastructure. In the Second World War, the RCN found that the interwar expediency of commissioning British-built destroyers, while assuring interoperability, made it too dependant upon the Royal Navy for wartime replacements and upgrades. Canadian industry had not had the need to develop the infrastructure or the expertise required in this highly technical field and, as a consequence, could not meet the demand until very late in the war. This meant (at the risk of oversimplifying a complex situation) that Canadian escorts were low in priority to receive available modern equipment and the operational effectiveness of the navy suffered. Accordingly, Canada must retain some level of indigenous capacity for the development of leading edge systems technology and ship repair and maintenance techniques. Consequently, it will be important that the facilities and skills necessary for the upgrading and maintenance of major naval units (and their fitted equipment) be nurtured by Canada, either publicly or privately to obviate undue reliance on foreign resources. What is of importance is that this capability be sustained within Canada to support the Navy After Next. Similar requirements must also be met in regards to fuel and other stores to keep units operationally ready.

A resource maintenance capability also demands that there exist an adequate force structure to allow for the rotation of units in operations, or "roulement," in order to carry out maintenance and upgrades without degrading the ability to respond to required taskings. Although a naval task group can in fact be made up of any number or combination of units (depending on the mission requirement), the force structure must be sufficient to support the availability of a nominal task group on each coast in readiness for world-wide deployment. Allowing for improvements, maintenance and necessary training phases, the



National Ship Repair Facilities — Graving Dock— HMC Dockyard, Esquimalt, BC. *(CF Photo)*

force structure must, by definition, be considerably larger than the available operational force (see discussion in Part 6, "Influence Events at a Distance").

The maintenance of personnel resources demands that recruitment targets allow the navy to train personnel without drawing down operational units below required manning levels. Further, an adequate number of personnel must be provided to allow for the rotation of units to ensure timely recuperation and a reasonable quality of life for service personnel and their families. Historically, since 1945, the Canadian navy has had a 50:50 sea-to-shore ratio (ie, 50% of personnel employed in ships, 50% in shore establishments), which has been higher than any other NATO member (the norm is 40:60). This could be taken to mean that Canada's navy has been very efficient. But it also means that "better business practices," which have improved efficiencies by doing away with redundant shore services, work to increase the ratio even further. One consequence is the strain on the quality of life for the sailors, airmen and airwomen who, without the option of shore postings, must spend more time away from their families. (Paradoxically, the old adage holds: sailors join the navy to see the world; what is expected is a reasonable tempo of operations.[16]) Time in shore establishments between sea postings will continue to be one measure that offers a reasonable operational rotation. The maintenance of morale, and hence effectiveness and willingness to serve, will also require that acceptable levels of medical, dental, spiritual and family support be available to service personnel, regardless of their location.

In addition to innovative methods of attracting personnel, it will be necessary to develop a focussed retention plan so that adequate numbers of specific highly skilled personnel remain in the navy, to ensure ongoing continued excellence and the ability to train newer personnel. It also will be important that sufficient personnel with experience in key leadership positions (not all of which will necessarily be of a technologically skilled level) be retained. As part of its retention plan, the Navy After Next will need to continually challenge its personnel to ensure that their skills and interests are not allowed to stagnate, resulting in reduced effectiveness and low morale.

[illegible]

- National repair and maintenance facilities for routine upgrading and maintenance of major units.
- National fuelling and storing facilities.
- Sufficient force structure to support continuous existence of two CATGs and assigned maritime air assets — 3:1 ratio to allow for rotation of platforms for routine maintenance and upgrades.
- Personnel strength sufficient to allow for training, education and non-operational rotation (QOL, QOWL) while maintaining operational units at optimal personnel strength.
- High level of medical, dental, and spiritual and family support to personnel.
- Focussed retention plan to protect tactical and technical effectiveness of the navy and maritime air forces.

Sustainment (Operational)

Operational sustainment allows for the maintenance of forces on station and (or) in theatre. This competency component is directly related to the Canadian Forces capability areas of Mobility and Sustainment, and obviously will facilitate the *Strategy 2020* objective of Global Deployability. But at the tactical level, it also will continue to be a basic requirement for sustained national operations, given the vast size of Canadian maritime areas of responsibility. Addressing both the endurance and the tactical mobility of future naval units generally will mean providing some type of underway replenishment capability. For example, it is commonly accepted that current frigates and destroyers can remain on station for eight to ten days, depending upon their speed (higher speeds, as in many vehicles, reduce endurance). With an underway replenishment capability, the same ship(s) can remain on station to the theoretical limits of equipment

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18 See Capt(N) Kevin Laing, "Canada's Navy: Operational Tempo at the Millennium" (paper presented to "The Canadian Navy in the Post Cold War Era", a conference held at the University of Calgary, March 2001, proceedings publication pending).

maintenance and crew stamina.[19] Even accepting that future vessels may have a longer endurance than current ones, the principle that underway replenishment can extend time on station remains valid. In order to maintain the same number of naval units on station in the absence of an underway replenishment capability, one or possibly more additional combatants per station would need to be added, depending on the distance to the nearest suitable port facility. Given that warships, due to their inherent complexity, historically have cost significantly more than underway replenishment vessels, a sound economic case can be made for the requirement to provide an at-sea support capability for the Navy After Next.[20]

Not only can underway replenishment allow units to remain on station substantially longer than otherwise possible, it also facilitates their deployment over great distances without recourse to shore based assets. Without such a capability, the navy generally would be confined to limited operations in or near southern Canadian coastal waters. There would be little or no ability to act in the far reaches of the EEZ, in the Arctic or globally with any meaningful force. While the possibility of making use of underway replenishment resources of other navies exists, and in reality is frequently done when the navy is working in combined exercises and operations, ultimately, responsibility for logistics must remain a national responsibility. In non-alliance operations, an at-sea replenishment capability will likely be a fundamental requirement of participation. Even if this were not the case, a problem would arise when one navy would have to rely on others for sustainment. For example, although NATO has developed a principle of collective responsibility for logistics among member states, there remain specific national requirements such as ammunition resupply and the maintenance and repair of weapon systems. Further, other forces may not give the desired priority to Canadian needs, or provide the level of services considered acceptable to Canadians. There would also be a problem if a strictly national operation required prolonged deployment and no Canadian capability existed. An operational sustainment capability will need to meet several objectives: to supply deployed units with fuel, consumable goods and ammunition replenishment; to act as a logistics co-ordinator; to conduct second-line maintenance of organic air assets; and to provide an appropriate level of medical and dental support.

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[19] Adjusting Course, p. 13; LCdr Bruce Irvine, "Afloat Logistics and Sealift Capability for the Canadian Navy," Canadian Defence Quarterly, Vol 117, No. 4 (Summer, 1997), p. 14. While the same principle can be extended to air-to-air refuelling, both aircraft and aircrew limits are more finite.

[20] For example, *Halifax* class frigates exceeded an all-inclusive unitary cost of $754 million. See Daniel Sing, "Procuring Warships for the Navy: Does Canada Spend Its Money Wisely?," *Canadian Forces College Review*, (1995), p. 80. Estimates place the cost of the Royal Netherlands Navy AOR replacement project at $328M. Even the ALSC (a hybrid vessel to include replenishment along with additional other capabilities) has a projected Unit Capital Cost of $410 million (NDHQ/VCDS, "DDA Brief of the Strategic Lift Concept Study to PJBD," 26 October 2000).

Sustainment, as encapsulated in a support vessel, will constitute more than simply a basic necessity — then as now, it will be a force multiplier. An underway replenishment capability will allow Canadian naval forces the flexibility to act as a tactically self-sufficient unit, whether engaged in domestic operations far from home port, or deployed outside of Canada in combined operations. It will contribute to coalition forces by reducing (possibly even eliminating) Canadian reliance on others' resources for support, or by contributing a vital and usually scarce resource to multi-national operations. Either way, it will add value to any Canadian contribution to operations.

In addition to an underway replenishment capability, expeditionary deployments may well require the long-term ability to support a large force in theatre. In the absence of a substantial (and in Canada's case, unaffordable) sea-based fleet train, in most instances this will require some form of local support. Even submarines capable of conducting independent patrols of extended duration, will require sustainment and re-supply when operating from forward or overseas locations. This operational level of capability will be achieved in the form of agreements to provide Host Nation Support (HNS) and in the establishment of Forward Logistic Sites (FLS) and (or) Advanced Logistic Support Sites (ALSS). These arrangements and facilities enhance the in-theatre logistic support for deployed forces with the provision of consolidation and re-supply locations. They could also be adapted to provide support to joint or combined forces operating in the region.

Sustainment Operational Defining Characteristics

- At-sea replenishment capability:
  - Provision of fuel, munitions and consumable goods (stores and parts).
  - Second line maintenance for organic air resources.
  - Provision of appropriate level of medical and dental support.
  - Interoperable for combined operations (principally with US and major allies).
- In theatre support:
  - Negotiated HNS.
  - Establishment of FLS / ALSS.
- Provision of limited support to joint forces.

Organic Air

These are aerial assets integral to the task group or TSSU, whether as a continuation of the present concept of embarked helicopters or as a coincident development of unmanned aerial vehicles (UAVs). Although more a method of contributing to the delivery of capabilities than a competency component in and of itself, organic air plays such a decisive role in so many aspects of naval activity that it deserves specific mention in any discussion of future capability requirements. In particular, organic air will allow naval forces to optimise the capabilities of weapons and sensor systems by its ability to extend substantially the ISR and control capabilities of its host unit or task group.[21] An organic air capability is unique in its ability to respond quickly to over-the-horizon threats day or night, in most weather conditions. It will facilitate the rapid investigation of contacts, allowing commanders to conduct Battle Damage Assessment (BDA, to ascertain the need for further engagement), at ranges beyond that which other organic sensors are able to provide accurate information. If armed, it also will permit the prosecution of targets beyond the range of weapon systems fitted to the host unit. Although assets other than organic air may be capable of fulfilling these roles, by definition they would be external to the TSSU, and hence contrary to one of its fundamental tenets. The major advantage offered by an organic air capability will be that it is immediately responsive to the tactical commander and thus not subject to competing requirements of other units or levels of command.

Organic Air

Organic Air Defence Characteristics

- All weather, day/night ability.
- Stand-off, remote relay, real time surveillance ability.
- Rapid response ability.
- Responsive to tactical commander's requirements.
- Limited self-defence ability.
- Limited stand-off attack ability.

FORCE MULTIPLIER COMPETENCY COMPONENTS

Fulfilling only the above *basic competency components* will allow the navy to contribute moderately to overall Canadian Forces capability requirements in the 2020 security environment. When the naval forces generated by these capabilities are brought together within the organizational structure of the task group concept, their operational utility will be greater than the sum of the individual components. The net result will be a deployable navy that can protect itself and conduct basic functions to a limited extent.

But Canada's navy must be able to do more than just "show up and defend itself." The navy must be able to support joint and combined forces and OGDs without acting as a drain on their resources. *The force multiplier competency components* listed below will bring greater synergy to Canada's participation across a wide range of operations, making Canadian naval contributions desirable and worthwhile to allies, coalition partners and OGDs. At the same time, they will play a large role in helping the Navy After Next meet the objectives of *Strategy 2020* to 'modernise', to be 'globally deployable' and to be 'interoperable'. These competency components will allow naval forces to influence the actions of potential and actual opponents, whether for deterrence, intimidation or the actual application of force. Accepting that resources are finite and all desired competency components may not be immediately achievable, they are presented in priority, beginning with those capabilities which will bring the greatest return on any investment of resources.

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[21] In the surface surveillance role, ship-borne helicopters, (the current organic air asset), equipped with a modern radar can cover more than 25 times the area capable of being searched by a ship alone. See the Maritime Helicopter Project *Statement of Operational Requirements* at http://www.dnd.ca/admmat/mhp/docssor_e.html

Force Defence

In addition to simply defending oneself, the ability to provide defence for other units, groups, non-combatants or national infrastructure is a feature that makes any committed force or unit of greater value to an operation. Still, the *SCP* requirement that only a low level of force protection will need to be provided at the strategic and operational levels admits that Canadian forces must be able to operate with allies at those levels of warfare, and should not seek to assume a leadership role. At the tactical level, however, it is accepted that Canadian naval forces will need to have a greater potential to contribute to force defence. At this level, the *SCP* calls for a medium capability.

This is appropriate, given the self-sufficiency required of Canadian contributions to international operations. In the case of a single unit, the capability of self-defence generally will suffice. However, if the TSSU provided is in the form of a naval task group, then a greater measure of defensive capability will be required. Besides individual units defending themselves, if the task group as a whole is to be able to conduct semi-independent or independent operations, it must be capable of defending both itself and any units under its control. In fact, not only does an ability to defend a force relieve others of the burden, it allows also for the extension of defence to include other combined or joint forces or non-combatants, depending on the force capability involved.

Although it will not be feasible for Canada to play a major role or assume a leadership position in all potential areas of force defence, in some areas this will be quite possible. Currently, Canada possesses reasonable capabilities in Force Air Defence and Force Underwater Warfare (UWW). As indicated earlier, the potential threat in these warfare disciplines is forecasted to continue and may well increase, given the spread of weapons technology and the shift to operations in the littorals. Therefore, it is in these areas that the navy should concentrate its efforts for a force defence capability.

- **Force Air Defence:** Effective air defence comprises a layered structure of airborne as well as seaborne assets.[22] The first layer consists of Airborne Early Warning (AEW) for long range detection of threats and air combat vehicles to engage them, but as an operational level (usually carrier-borne) defence, this is considered to be outside of future Canadian requirements. More practicable would be sea-based assets at a closer range providing the next wide area layer, with individual units remaining responsible for the final (self-defence) layer.

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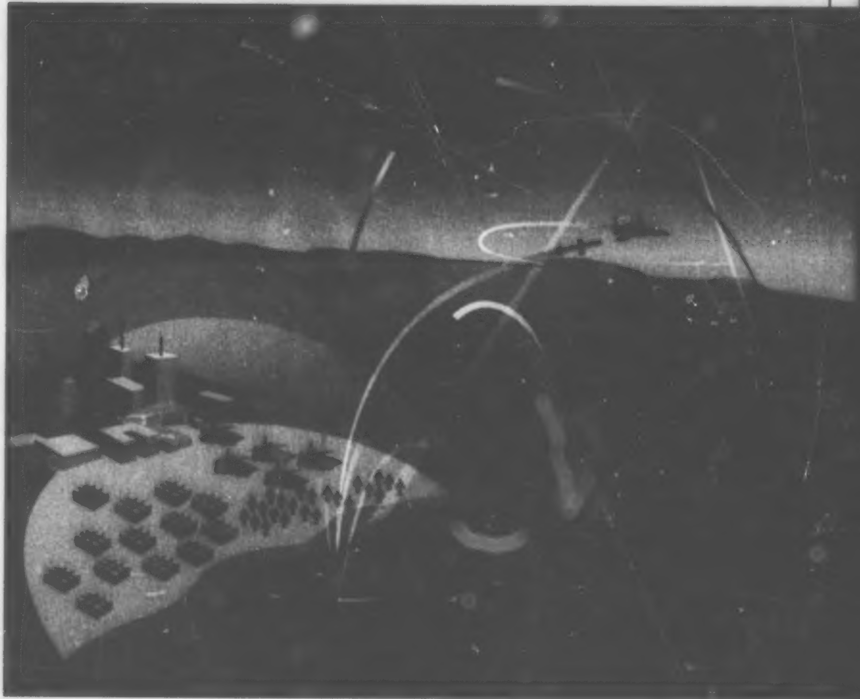
[22] This argument is made by, among others, Hill, *Maritime Strategy for Medium Powers*, pp. 171-74.



Force Air Defence

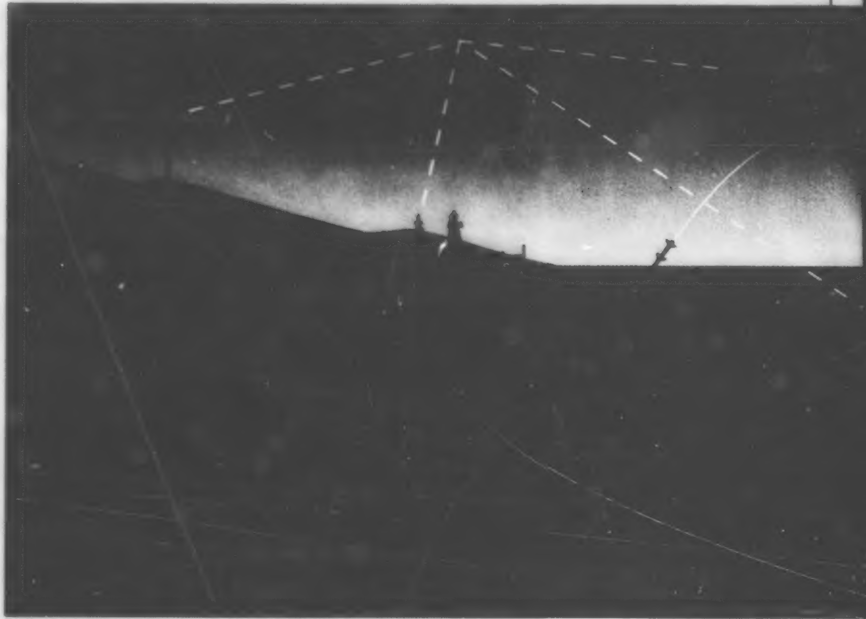
In most operations where Canadian naval forces could likely encounter a substantial air threat, they likely will be deployed as part of a combined or joint force. In such cases, the ability to provide direction to airborne assets provided by allies or joint forces will be sufficient. Nonetheless, a Canadian task group still will require the independent ability to detect, localise, track and engage multiple threat targets at a sufficient range to protect all the assigned elements of the force, some of which may not be in close proximity. As well, the engagement range must allow sufficient time for reengagement should the initial attempt be unsuccessful. Given the speed, range and increasing sophistication of modern airborne weapons, future defensive systems will need to be sophisticated and agile, capable of automatic evaluation and target recognition (ATR) and response in order to counter attacks in a timely manner. These systems also will have to have growth potential and be designed with open architecture to allow for continual upgrading to meet any future developments in the threat systems. Both control and weapons systems will need to have the characteristics of range, speed and precision, and in the case of weapons, lethality. To achieve this, in addition to a long range weapons system, an effective C4ISR capability that is fully interoperable with major allies will be required to provide and receive the level of information needed to ensure a reasonable and timely force defence capability. The way ahead is perhaps foreshadowed by the American concept of Cooperative Engagement Capability (CEC).

With an effective Force Air Defence capability, a Canadian naval task group will be able to provide defence for all vessels that enter into the area encompassed by its weapon systems or those of assets under its control. Depending on its location and the effective range of its weapons, sensors and network interoperability, this capability may be extended to provide Force Air Defence for joint or combined force units. Regardless, if linked into the greater battlespace picture, this capability could provide at least early warning of developing threats and may contribute to operational level protection in addition to the tactical level. A secondary attribute of an effective Force Air Defence capability may well be the ability to contribute to Theatre Ballistic Missile Defence (TBMD), in the form of sea-based platforms providing indication and warning (I&W) of missile launches, as well as the potential to engage targets. This will be especially important when conducting expeditionary operations with joint and combined forces.

Force Air Defence Defining Characteristics

- Layered capability.
- Capable of long range detection, localisation, tracking and engagement of multiple targets (range and precision).
- Automated evaluation and response systems (speed).
- Fused, multi-sensor AAW picture.
- Effective weapon systems (speed, range, precision and lethality).
- Over land capability.
- Interoperable for joint and combined operations (primarily with USN AAW assets).
- Capable of conducting C2 for assigned naval and air units (including combined assets).
- Contribute to theatre level AAW operations.

- **Force UWW:** Underwater Warfare (UWW) includes all aspects of undersea operations, but two of the most immediate future interest to Canada, given the nature both of home waters and of potential expeditionary operating areas, are anti-submarine warfare (ASW) and mine countermeasure (MCM). ASW is deemed to include the capability to act against both manned (submarines) and unmanned underwater vehicles (UUVs). MCM includes the hunting, sweeping and disposal of mines from a specified area. Littoral operations will offer opportunities for states that have limited resources to present credible, asymmetrical submarine and mine threats, in a particularly challenging environment. And in this case they can do so either offensively in Canadian waters or defensively in their own. Still, Canada cannot afford (nor will the country



Force ASW

have the requirement) to pursue all levels of warfare capabilities, and some limitations must be accepted regarding the capabilities to be acquired.

As in Force Air Defence, the Canadian navy has developed a viable Force ASW capability and expertise. Canada also possesses mature industrial and Research and Development (R&D) sectors in the fields of acoustics, signal processing and ASW equipment in all but ASW weapons. Therefore, continued concentration in this particular area of UWW is a logical method of providing a relevant national contribution to alliance and coalition operations.

The threat from submarines will continue into the future and ASW is difficult at the best of times, given the advantages inherent to hostile submarines. However, conducting ASW in the littoral environment is much more likely and much more difficult than in the open ocean. Essentially, the various geographic factors of the often shallower water inhibit the acoustic environment, making underwater detection very challenging. Operations in the usually restricted waters of the littorals also will likely mean there is less opportunity to avoid potential submarine operating areas than in the open ocean, as well as having a greater potential for interference in the form of additional threat and environmental considerations. As a result, reliance on traditional acoustic methods as the primary detection source will prove inadequate in the littoral environment. Use must be made not only of acoustic technological advances but also of the abilities of other sensors and developing technologies (surface, sub-surface, airborne, land and space based). These various inputs must be exploited and combined to develop a fused Underwater Warfare picture that in turn must be integrated into the overall command and control system to provide the Commander with a complete tactical picture.

Many of the same features that apply to Force Air Defence will also be applicable to Force ASW. The most efficient method of ASW will likely be the destruction of submarines in their homeports. However, this strategic/operational level option would likely only be available in a traditional, high intensity war scenario. It also will be beyond the capabilities affordable or required by the Canadian Forces. Nonetheless, it will be appropriate for the Canadian navy to contribute at the tactical level. Effective management of Force

ASW will require an integrated and interoperable C4ISR capability to disseminate a comprehensive battlespace picture that will allow effective reaction to threats, preferably at stand-off ranges such that the threat submarine does not endanger the forces or non-combatants being protected. As such, in this case also a layered defence concept will consist of various long range (fixed or mobile) surveillance and reconnaissance assets, as well as long range localisation and engagement assets. These may include airborne or sub-surface assets, either manned or remotely controlled. Shorter-range assets (aerial, surface, subsurface) with detection, localization and prosecution abilities will form the intermediate layer. The final layer of ASW defence consists of individual unit self-defence, to include an integrated torpedo defence system that encompasses effective detection, localization, and both hard and soft kill capabilities. Finally, although the Canadian Task Group may not be able to provide all of the assets required when conducting Force ASW, it must have the technical ability, experience, and training to exercise effective command and control of assets provided by joint or combined forces, whether they are airborne, surface or subsurface forces.

Another major component of UWW is mine warfare. In the future, mines will be even more plentiful, relatively inexpensive, and easy to use. They will continue to create an underwater hazard out of proportion to the effort required to create that threat. The primary means of dealing with mines is prompt detection, as avoidance is frequently possible, and that will be the preferred method of dealing with mining for naval forces deployed overseas.

Although there is unlikely to be a direct military threat to Canada, the ease of sowing mines requires disproportionate efforts to deal with a perceived or actual threat. This makes the use of such weapons an attractive option for potentially hostile regimes or terrorist organisations wishing to act against Canada, to indirectly threaten the United States, or merely to illustrate an ability to act globally. The ports of Halifax and Vancouver, and the St Lawrence Seaway, for example, are vulnerable points for mining operations against Canada. To be able to deter mining or to provide an appropriate reaction to a successful mining of Canadian waters, a limited but credible degree of MCM ability will be required. Currently, such ability exists.[23] It should be preserved and kept up to date in order to deal with the latest potential threats to the defence of Canada.

Traditionally, an effective MCM capability required considerable resources for dedicated ships, equipment and personnel. Modern technology, in particular remote control technology, and improvements to self-protective measures (SPM) will bring about a considerable reduction in the mine/MCM imbalance to the advantage of the navy. Consequently, while the Canadian MCM capability will be limited in numbers, it will be credible and useable in a variety of situations, from a variety of platforms, at short notice. The requirement for a dedicated standing MCM force composed of specialised ships and large numbers of personnel will give way to a limited MCM organization, utilizing modular and portable systems, geared to providing for the defence of Canadian home waters and contributing to the defence of North America.

[illegible]

- Force ASW:
  - Layered capability.
  - Capable of long range detection, localisation, tracking and engagement of multiple targets (range and precision).
  - Automated evaluation and response systems (speed).
  - Fused and automated multi-sensor ASW picture.
  - Multi-dimensional sensors.
  - Effective weapon system (speed, range, precision and lethality).
  - Deep and shallow water sensor and weapon capabilities.
  - Interoperable for joint and combined operations (primarily with USN ASW assets).
  - Capable of providing C2 to assigned ASW assets (joint and combined).
- MCM
  - Advanced route survey, minehunting and mine clearance ability in national and continental waters.
  - Effective C4ISR capability.
  - Interoperable — primarily with USN MCM forces.
  - Modular packaging for migration amongst TSSUs.

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[23] Modern remote control technology is being exploited to provide remote minehunting, mine disposal and influence minesweeping techniques. A remote minehunting technology demonstrator is currently undergoing trials and is showing great promise.

Support to Other Forces

The scope of this competency component is limited to the specific functions of Sealift, Naval Fire Support, and Gateway C4ISR. The provision of any or all of these will serve to fulfil the *Strategy 2020* objectives to Modernise, to be Globally Deployable and to Develop Strategic Partnerships. They will allow Canadian naval forces to provide effective support to others in accordance with government direction for national roles or as part of coalition or alliance operations. Importantly, they will ensure that the support provided truly will be value-added, rather than simply providing presence and defensive forces.

- **Sealift**: Canada has made use of long-range seaborne transport, or strategic lift, at several points in the past. The movement of Canadian land forces to Europe in two world wars and of a brigade to Korea in 1951 represent the best known instances. Additionally, since the end of the Second World War, Canada has been involved in numerous peace support activities that required the ability to transport troops overseas and to sustain their operations once there. The UN interventions in Suez, Cyprus, Somalia and East Timor are but a few examples in which integral Canadian naval sealift was employed, whereas NATO operations in the Balkans in the late 1990s had to make use of commercial shipping. The continued requirement for strategic lift is a consequence of the direction in the *1994 White Paper* and *Strategy 2020* for the Canadian Forces to respond rapidly and independently to crisis situations overseas.[24] Although ships and aircraft generally can get to their required stations without assistance, the main body of land forces and necessary supporting elements require the use of some form of strategic lift. For the large-scale movement of military forces, this ability will continue to be dependent on the availability of civilian merchant marine resources. However, there will be occasions in which this is neither available nor appropriate. An integral naval sealift capability will allow Canadian forces the flexibility to deploy rapidly (and later withdraw) land and air forces to the far reaches of the globe.

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[24] The *1994 White Paper* (chapter 6, p. 7) requires the CF to be ". . . prepared to deploy on UN operations contingency forces up to a maritime task group, a brigade group plus an infantry battalion group, a wing of fighter aircraft, and a squadron of tactical transport aircraft." ; *Strategy 2020* (p. 10) calls for the CF to "enhance the combat preparedness, global deployability and sustainability of our maritime, land and air forces.", and to "Enhance our strategic airlift and sealift capability."

The sealift component of strategic lift will be particularly important, in that it allows the transport of heavy and outsized vehicles and equipment such as tanks, self-propelled artillery, armoured personnel carriers, bridge layers and other medium and heavy equipment that are generally not air-transportable. Additionally, sealift tends to be significantly less expensive than strategic airlift.[25] Accepting the premise that Canada should and will use military forces overseas, with the exception of the need for quick delivery of relatively small cargo, some sort of sealift can be justified as economically sound. Not only will a sealift ability allow Canadian resources to be delivered to (or extracted from) desired locations, thus partially fulfilling the *Strategy 2020* objective of Globally Deployable, but this capability will also enhance some elements of Sustainment.

There are two major characteristics that will be required of an integral or organic CF sealift capability. First, although required at a High or independent Canadian military level, it will remain limited in scope. It must allow the Canadian Forces to be capable of deploying the major elements of the designated Vanguard forces and their equipment world-wide within the required timelines.[26] Main Contingency and follow-on forces will continue to need to make use of civilian shipping. Second, although there is no intention to provide a capability for amphibious assault, the Canadian Forces will require sealift with the potential to operate in a theatre with austere infrastructure. Although the majority of embarkation and disembarkation operations can be expected to occur in ports offering adequate loading and unloading facilities, this cannot be guaranteed. There have been, and will likely continue to be, occasions that require the ability to embark or disembark stores, equipment and personnel in regions with rough or non-existent port facilities. Delivery of resources to areas either affected by natural disaster or damaged as a result of armed conflict provide two possible examples.[27] Therefore, a sealift asset must also be capable of landing equipment and supplies across open beaches if necessary. This is known as Logistics Over The Shore (LOTS) and is intended for use in a benign environment. In such conditions, Canadian Forces organic sealift must be able to effectively carry out loading or unloading operations in moderately adverse environmental conditions. And having delivered expeditionary Canadian Forces to unimproved areas, there will be the additional concern that many such locations may lack sufficient security. A limited form of local security may be needed to allow for embarkation or disembarkation of supplies, equipment and (or) personnel.

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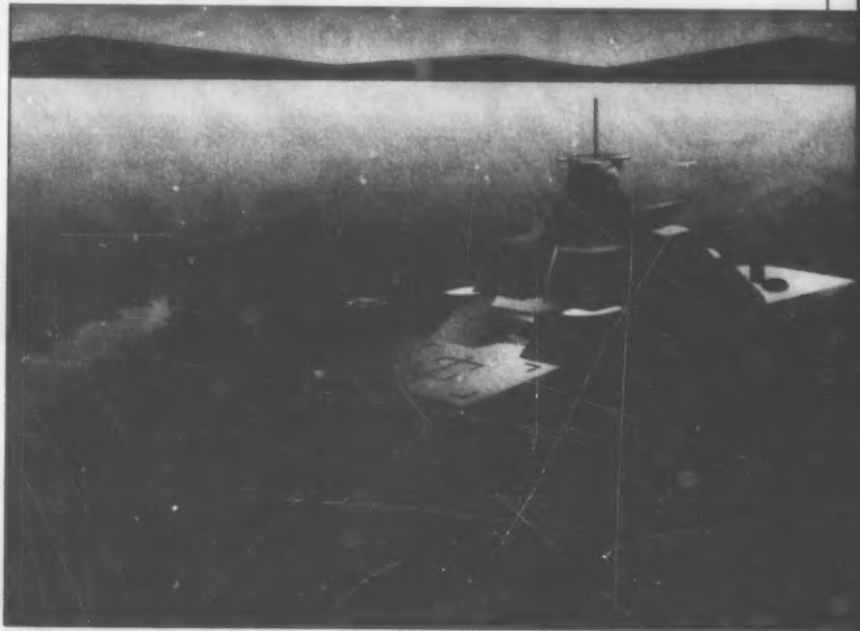
[25] A comparison of cost in 1998 indicated that the approximate cost of movement of a ton of cargo by sea was $0.04 per ton/mile. For the same cargo to go by military aircraft the costs would have been: CC130 — $3.08, CC150 — $0.64 and by C17 Globemaster — $0.41 per ton/mile. DND, Directorate of Defence Analysis, Strategic Lift Analysis and the Strategic Lift Concept Study briefing 3 June 1998.

[26] The current requirement is stated as the land force "vanguard and main contingence forces are to be fully deployable to an offshore theatre of operations within 21 and 90 days respectively." See Strategy 2020, p. 10; 1994 White Paper, p. 39.

[27] The situation in Somalia during Operation Deliverance in 1992 is a useful example. See Capt (N) R.W. Allen, "Combined and Joint Operations in Somalia," in Haydon and Griffiths (eds.) *Multinational Naval Forces* (Halifax NS: Dalhousie University Centre for Foreign Policy Studies, 1996), pp. 203-30.

Development of a dedicated sealift capability within the navy will reduce initial reliance on the availability of commercial hulls, and could be reconfigured or be modified to fulfil a variety of other roles in support of other forces for which combatants are not ideally suited.[28]



Logistics Over The Shore (LOTS)

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[28] Such as the provision of C2, R&R and medical support facilities for Joint Forces in an environment where insufficient facilities exist ashore or are not deployed, as occurred with the use of the AOR ships deployed to Somalia and East Timor.

Additionally, national assets would be available for immediate re-tasking or long-term employment without potential complications related to non-government ownership. With an ability to provide sealift resident in the navy, the Canadian Forces will also possess a limited level of intra-theatre mobility, as civilian vessels are not normally expected to operate within an operational theatre in most levels of conflict.

Sealift Defining Characteristics

- Rapid availability — national asset.
- Sufficient force structure to support limited lift requirements (Vanguard forces).
- Ability to carry "out-sized" equipment.
- Able to operate in an austere environment — LOTS.
- Able to operate in moderately adverse environment conditions.
- Reconfigurable (if a naval asset) for operations other than sealift.

- **Naval Fire Support (NFS)**: The flexibility and rapid reaction ability inherent in naval forces may well result in their being the first coalition or national forces to arrive at a crisis location. Aside from making a statement with their presence, their ability to threaten or to apply firepower ashore may well be necessary to deter a potential aggressor from taking action, thus stabilising a situation until other methods of dealing with it are explored. The purpose of operating naval forces in the littorals is to influence events ashore, and the ability to direct naval firepower at land targets will add greatly to the value of any future naval contribution to joint and combined operations.[29]

  The term 'naval fire support' is defined as fire provided by naval gun, missile and electronic-warfare systems against targets ashore in support of a unit or units on land.[30] This competency component will allow for the protection of forces deploying ashore until they are able to establish sufficient defensive capabilities to protect themselves, or for the preparation of the operating area prior to the insertion of land forces if required. Especially in the event of

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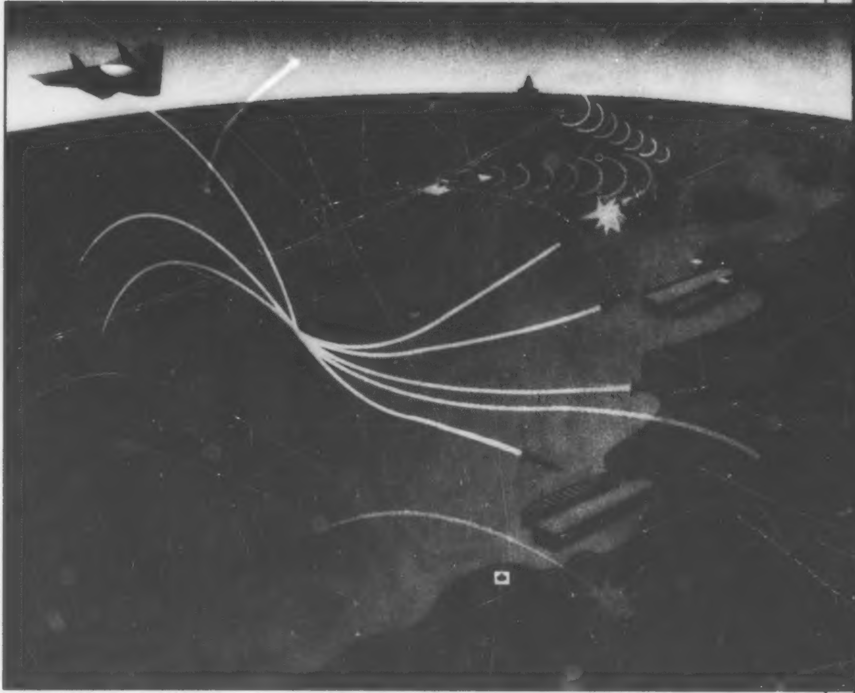
[29] See Richard Scott, "Learning the maritime lessons of East Timor," in *Jane's Defence Weekly*, vol. 34, no. 09, (30 August 2000), pp. 27-30.

[30] It is also known in USN jargon as "naval fires". For a further discussion, see "Naval Fires: Sea-Based Warfighting in the 21st Century" in *Surface Warfare*, vol. 23, no. 5 (September/October 1998), pp. 18-23.



Naval Fire Support (NFS)

rapid intervention at an early stage in a contingency operation, naval fire support acting as mobile artillery will allow relatively light land forces to be deployed with some assurance that they will not be placed in an unduly dangerous situation. Naval fire support could also be used to assist in the application of force to resolve a situation, even if there is no immediate intention to introduce other forces to the operation. In fact, it may serve to avoid the need to insert other forces into situations where the potential for casualties exists. The use of sea-based air assets, and submarine- and ship-launched land attack missiles in the Gulf War (1991) and the NATO operations in Bosnia (1995) and Kosovo (1999) are three examples of such a use.

The full range of this capability will be beyond that required or desired by the Canadian Forces. Canada has no intention to act alone or even to take a leadership role in the conduct of strategic or operational strike or in the conduct of amphibious invasions. Therefore, there will be no need to pursue specific strategic and operational level systems.

However, the need will be different at the tactical level. Canada has indicated the intention to participate in multinational operations and will, if necessary, deploy forces on the ground. While there is no intention to conduct a landing of Canadian Forces personnel and equipment in a hostile environment, there will be no guarantee that the permissive environment of an 'administrative landing' will not deteriorate as the threat to forces ashore increases. Circumstances could well arise in which land forces (Canadian or otherwise) will require combat support from forces afloat. If Canadian naval forces are the sole assets immediately available, a capability to provide some form of tactical level naval fire support (whether aerial munitions, land attack missiles or gunfire) to forces ashore will be necessary.[31]

There are any number of other applications of a naval fire support capability in future littoral operations. It will provide the protection necessary to conduct a non-combatant evacuation operation (NEO) in a potentially hostile environment, which is a clearly stated national responsibility. Similarly, it could contribute to both force and self-defence of naval units, in providing the ability to engage shore targets such as anti-ship or anti-air batteries. It also would contribute to the provision of a "reasonable offensive capability" for a limited form of interdiction against land targets (such as shore bombardment and 'trainbusting' during the Korean War — see Part 4). In each of these cases, it is considered that a medium level capability will be required to allow Canadian naval forces to take a leadership role at the tactical level of naval fire support for operations ashore.[32]

The acquisition of this capability not only would contribute to the defensive and offensive abilities of Canadian naval forces, but also would reduce reliance on allies such as the United States or Great Britain for the provision of this resource at the tactical level in combined operations. At the same time, it would serve to generate an advanced combat capability involving leading edge technology. Important features of this competency component will be range, speed, precision and lethality, as related to the actual weapons system. This component also will be contingent upon the possession of a leading edge C4ISR capability. It would enhance combat preparedness and increase the flexibility of potential employment within joint and combined forces, and thus the interoperability of Canadian naval forces. All of these attributes clearly support several of the objectives articulated in *Strategy 2020*.

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[31] The tactical level of naval fire support is characterised by the ability to react within minutes against forces immediately threatening friendly forces at the tactical level. See "Naval Fires: Sea-Based Warfighting in the 21st Century," p. 20.

[32] As noted in the section on Force Defence, this medium level capability would require, if not the ability to deliver all aspects of the capability by CF units, at least the ability to execute effective command and control of any appropriately equipped forces made available to Canadian commanders.

Naval Fire Support Defining Characteristics

- Tactical level capability.
- Interoperable — joint and combined (primarily with USN).
- Effective C4ISR for precision targeting.
- Capable of providing effective C2 for assigned forces — combined operations.
- Capable of rapid response to calls for fire.
- Effective weapon system — speed, range, precision and lethality.

- **Gateway C4ISR**: This is a conceptual capability that would provide an interface between advanced systems and those of substantially lesser capability, thus permitting the automated sharing of pertinent information. Although C4ISR is a vital basic competency component, the development of a "gateway" capability could prove to be a great advantage in making Canadian contributions to multinational operations particularly desirable. If technologically feasible, this would allow those navies that cannot field the necessary technology to interface directly with American C4ISR capabilities, to do so through Canadian units. As such, it would greatly enhance the interoperability not just of Canadian forces, but of many multinational forces. It would help to ensure a greater cohesiveness and confidence between participating nations. Those forces not normally capable of accessing the greater resources of the Americans would be provided with a more comprehensive picture, which would likely result in them being better able to participate in the operation. The result may well be that the commanders of operations would be able to put greater reliance on the forces from the "lesser" advanced nations, thus freeing those of the more advanced states for missions that only they would be capable of conducting effectively. Many of the same advantages would accrue to Other Government Departments (OGD) and Non-Governmental Organisations (NGO) partners, if such a system was also capable of interfacing with other governmental and commercial systems. The end result would be a true force multiplier for both domestic and international operations.

The development of this competency component likely would require leading edge software. Such software not only would be able to interface effectively between the different levels of technical complexity, but also would have to have an effective filtering system to ensure that less sophisticated systems were not overwhelmed with the amount and types of data provided. Additionally, robust security measures, such as multi-level access would be required in order to satisfy the concerns of the more advanced states who would be providing much of the ISR to develop the picture. Although difficult to develop and keep current, given the multinational nature of Canadian force participation, this capability would prove to be extremely useful, particularly in coalition operations.

- Interface with major allies and less technologically advanced forces.
- Interface with OGD and NGO communication and information systems.
- Sophisticated software.
- Effective filter system.
- Robust security capability — multi-level access.

Tailored Capabilities for OOTW

The Spectrum of Conflict diagram in Figure 1 provides a graphic illustration of the fact that the portion considered Operations Other Than War (OOTW) is greater than the portion pertaining to operations of war or "war-fighting." This is perhaps not surprising. The Canadian definition states that OOTW "are very broad in scope and range from domestic operations within Canada to peace-enforcement operations abroad."[11] Even if the use of any form of combat operation is included as war-fighting, a significant part of what armed forces do remains outside that realm. Navies are no different. A review of the potential naval functions (Figure 6) affirms that many fall into non-war-fighting categories.

Tailored capabilities are those that are specifically and solely geared towards the conduct of OOTW. One example would be the commitment of specific financial resources to the design of a warship to compensate for providing it with an ice-breaking capability, and then the additional associated Operations and Maintenance costs. Another would be the acquisition of equipment and training specifically for the purpose of providing assistance in environmental or natural disasters.

Inherent Flexibilty —An ASW Sea King conducts a rescue in the North Atlantic *(CF Photo)*

Yet, many of the competency components listed in this part would allow the Navy After Next to conduct OOTW despite their acquisition primarily for war-fighting purposes. In fact, several of the navy's functions that are currently defined as OOTW rely heavily on the capabilities that are developed for the purpose of allowing it to engage in combat operations. For example, naval diplomacy and MIO are both considered OOTW. Yet, to be effective, both rely on the inherent capability of the forces involved in these operations to apply armed force if required.

The ability to conduct a wide range of OOTW will allow for a meaningful contribution to national and international situations, and will enhance the relevance of the navy both domestically and internationally. Indeed, working with OGDs or NGOs will serve to further develop and strengthen strategic partnerships with these agencies in accordance with the objectives of *Strategy 2020*. Even without tailored capabilities for OOTW, naval forces still will be able to conduct a significant level of these types of operations due to their inherent flexibility. It bears repeating that, while military and naval forces trained and equipped for combat tasks can be employed for non-combat roles, the reverse will certainly not be the case. As the ultimate reason for naval forces is to be prepared to conduct combat operations in support of the national will, the acquisition of capabilities tailored for OOTW (specific equipment, training, skills and doctrine) should only be contemplated once all necessary military capabilities have been adequately provided.

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33 Canada, *Defence Planning Guidance 2001* (Ottawa: Department of National Defence, 2000), p. GL-6.

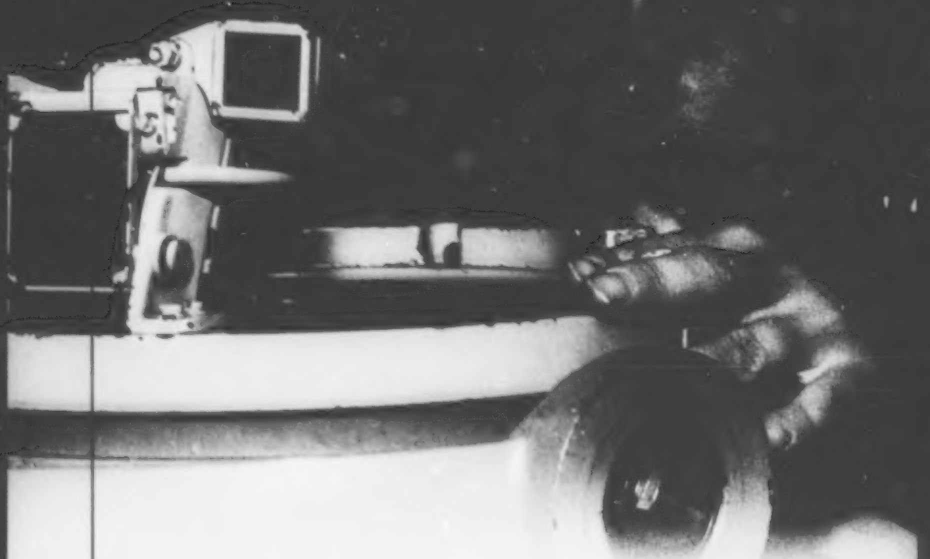
Tailored Capabilities for OOTW

- No detraction from combat capability.
- Only be acquired for situations that can reasonable be expected to occur.
- Contribute significantly beyond what normal military capabilities can provide effectively in a given situation.
- Capability not available within an Other Government Department

SUMMARY

This Part of *Leadmark* has been developed from the ***core competencies*** needed to fulfil the potential Canadian naval functions identified in Part 6. In doing so, a number of naval competency components have been described, and these can be related directly to the objectives of the *1994 Defence White Paper, Strategy 2020* and the CF Capability Goals matrix. Without the articulated ***basic competency components***, the Navy After Next will be little more than a "paper tiger", unable to realise its core competencies at even the most rudimentary level. Other ***force multiplier competency components*** are required to enable the Navy After Next to be a significant player on behalf of Canada in joint and combined operations at home or abroad. When these are provided at the levels stated in the Capability Goals Matrix (Figure 7), and brought together within the catalytic structure of the task group, the value of the Navy After Next is assured. *Strategy 2020* and the *SCP* demand that such proficiency be achieved by "high quality, combat capable, interoperable and task tailored forces." Where Navy After Next capabilities are concerned, the leadmark to which naval planners must steer is clear.

8



On Track

by Leadmark

8

ON TRACK

by Leadmark

> *Governments cannot live forever, for governments are born to grow and die as well as men... but mark my words, whoever may take over the reins of power [in Canada] will have to have a navy, as every nation with a seashore must have and has had in the past.*
>
> Sir Wilfrid Laurier
> (10 November 1910)[1]

Prime Minister Laurier spoke these words against the backdrop of the national debate surrounding the creation of the Royal Canadian Navy. That such a service should exist was not at issue, but rather its form. Canada's naval defence already was assured by the preponderant might of the Royal Navy. But, in the early years of the century that Laurier had said would belong to Canada, a navy capable of independent action on the world stage was an accepted element of a sovereign state. Now, as the 21st century beckons, Canada still must expect no less.

In exploring the challenges and the possibilities of the future security environment, Leadmark has articulated a naval strategy that will enhance the Canadian government's ability to respond to national emergencies and to intervene overseas militarily at the time and place of its choosing. It is the leadmark for the Canadian navy on its course into the 21st century:

> ***The Naval Strategy for 2020: The Canadian navy will continue its development as a highly adaptable and flexible force, ready to provide the government with a wide range of relevant policy options across a continuum of domestic and international contingencies up to mid-level military operations.***

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[1] Quoted in frontspiece to Milner, *Canada's Navy: The First Century*.

> ***The navy will generate combat capable forces that are responsive, rapidly deployable, sustainable, versatile, lethal and survivable. Canada's naval forces, from individual units to complete Task Groups, will be tactically self-sufficient and be able to join or integrate into a joint, US or multinational force, anywhere in the world. The navy will enhance the capability to deploy Vanguard elements for crisis response and to support the rapid deployment of the Land and Air Main Contingency Forces.***

Pursuing this strategy will allow the Navy After Next to fulfil its three fundamental roles: to **Defend** National and Allied Commitments; to **Support** Canadian Foreign Policy; and to **Secure** Canadian Sovereignty. This navy will continue to provide the Canadian government with a wide range of crisis management options that span the entire spectrum of conflict, from presence and humanitarian assistance through peace support operations to active war-fighting, in scenarios as diverse as fisheries patrols, disaster relief, sanction enforcement and collective defence. It brings to future Canadian Forces operations in the vast littoral regions of the world a range of capabilities, certain of them resident only in naval forces, and some common to the other services but more efficiently delivered from the sea. Navies cannot hold ground to the extent that an army can, nor can they reach as swiftly to the far corners of the globe as an air force. That said, the ability of a navy to stand off its own or foreign shores for an indefinite period with substantial combat capabilities cannot be matched. Any expeditionary concept of operations developed for the Canadian Forces must be undertaken in recognition of these unique attributes.

Warships, in all of their technical and sociological complexity, have been upheld throughout history as evidence of the achievements of a particular age. To generate and sustain such forces requires a constant and determined effort, and steadfast attention must be devoted to the purposes to which they are set. If the cost of building and sustaining a viable navy is high, the cost of not having one is infinitely greater. Experience and operational research continue to demonstrate the simple fact that, while military and naval forces structured for combat tasks can be employed for non-combat functions, the reverse is not true. The fleet must be adaptable to evolving trends, but it must see primarily to the enduring needs of national defence. And the dividends are not always obvious: "Paradoxically, a warship that spends its life without firing a shot in anger fosters the illusion that it is irrelevant."[2]

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[2] Rear-Admiral Fred W. Crickard, "Maritime Issues in Canadian Security Policy," in *Niobe Papers, Vol 5: Canada's Navy Sailing into the 21st Century* (St John's, NF: Robinson-Blackmore for The Naval Officers' Association of Canada, 1993), p. 24.

In the final analysis, Canada's navy is a symbol of the state itself. Technically proficient and operationally credible naval forces exemplify a state with those very characteristics: strong, with the ability to take a stand on an issue. *Leadmark* identifies the maritime challenges of the 21st century security environment, establishes a conceptual framework for the navy's strategy to address them, and points to the capabilities required to implement that strategy. It offers nothing less than a ***medium global force projection navy that will serve Canada as a multipurpose, interoperable force, capable of joint and combined operations worldwide.***

READY AYE READY

SELECT

SELECT *Bibliography*

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APPENDICES

APPENDIX A

SELECTED DOCUMENTATION

CANADIAN FORCES / DEPARTMENT OF NATIONAL DEFENCE

In the early stages of development of *Leadmark*, the Defence Fellow at Dalhousie University and staff officers within the Directorate of Maritime Strategy wrote background papers to set the stage and provoke discussion. Further input into the development of *Leadmark* was provided by future security analyses commissioned from several eminent academics, and to a certain extent by a number of future capability studies by other sections of the Maritime Staff. Of these latter studies, the most important are "Capability Blueprints to 2010" prepared by the requirements cells of the Maritime Staff. Although speaking to common general concepts, they are more near-term in their focus and will form part of the larger follow-on *Maritime Commander's Strategic Capability Planning Guidance*. They are not listed here, but are available upon request.

Maritime Security In The Twenty-First Century: Maritime Security Occasional Paper No. 11 — these background papers were written to provoke discussion at a series of seminars in the spring of 2000 into the themes that would be developed in *Leadmark*. They comprise the following works by the Defence Fellow at Dalhousie University, staff officers within the Directorate of Maritime Strategy and several eminent academics:

- Introduction, *Dr. Timothy M. Shaw*
- A Century of Canadian Maritime Force Development: A Reinterpretive History, *Lieutenant Commander Richard Gimblett*
- A Naval Assessment for 2020, *Lieutenant Commander George Kearney*
- The (Re)Definition of Security: Implications for Canadian Naval Strategy in the 21st Century, *Dr. Brooke Smith-Windsor*

63

- Maritime Security in the 21st Century: The Changing Maritime Security Environment, *Commander Edward L. Tummers*
- Thoughts from the Outside: Rethinking Maritime Strategy and Force Requirements for 2020, *Dr. James Fergusson*
- Whither the Navy? A Hard Look at the Future of the Canadian Navy, *Dr. Marc Milner*
- What Naval Capabilities Does Canada Need?, *Peter Haydon*

Strategy 2020 — already has been referred to in the main text as the keystone document guiding the development of DND/CF into the 21st century. It took into account a number of emerging defence issues as described in its own reference publications (subsequently published separately):

- ***Strategic Overview***.[1] Produced annually by the Directorate of Strategic Analysis, this document identifies and analyzes geopolitical, economic, military, ethnic, religious and technological factors that shape issues around the globe. In addition to an examination of major geographical regions of the world, specific functional issues and considerations are also examined. The discussion and analysis is conducted at a general strategic level and is not specifically related to the Canadian Forces, although, implications for Canada's long-term security interests can be drawn from the work.
- ***Military Assessment***.[2] This forward looking document is produced biannually by the Directorate of Defence Analysis (DDA) to provide context for defence planning activities within the Canadian Forces. It complements the *Strategic Overview*, the difference being that the *Military Assessment* analyses the implications of geopolitical events for the Canadian Forces, specifically in terms of strategic capability requirements over a longer timeframe. Although a useful foundation document, for the purposes of *Leadmark* it does not provide sufficient detail of the emergent maritime security environment. Security assessments from a naval perspective therefore were developed internally by the Maritime Staff.[3]

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[1] *Strategic Overview 2000* (Ottawa: Directorate of Strategic Analysis, Department of National Defence, 2000).

[2] *Military Assessment 2000* (Ottawa: Directorate of Defence Analysis, Department of National Defence, 2000).

[3] See Part 5 and Appendix D.

- ***Canadian Defence Beyond 2010*** — The Way Ahead: An RMA Concept Paper.[4] This paper examines the possibilities of change to the doctrine and organization of DND/CF offered by this evolving defence issue.

The Future Security Environment.[5] This concept paper is the first step in the Canadian army's three-part development process for the Future Army. It examines the factors that appear to have the greatest influence on the future, including the lessons of history, the global geo-strategic environment, the domestic environment, emerging technology, and allied and foreign force development. It concludes with an assessment of the impact on the future security environment on operations and an articulation of the major roles foreseen for the Future Army. Although its own publication was overshadowed by *Strategy 2020*, many of the themes it explored are germane to those of *Leadmark*.

US AND ALLIES

Within Canada's North American and European collective security partnerships, the United States and the United Kingdom spearhead most developments. Understanding how they foresee the development and employment of their armed forces in the future security environment is fundamental to any Canadian reappraisal. The many similarities of Australia and the Netherlands with Canada, especially with regards to their general military, political, economic and social situations, should also inform such work. The following selections survey the most recent approaches amongst these navies with most direct relevance to our own.

> ***From the Sea*** and ***Forward ... From the Sea***.[6] Promulgated in 1992, ...***From the Sea*** defined the strategic concept intended to carry the US Naval Service (ie, the Navy and the Marine Corps) beyond the Cold War and into the 21st century. It signalled a change in focus and, therefore, in priorities away from operations on the sea toward power projection and the employment of naval forces from the sea to influence events in the littoral regions of the world.

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[4] *Canadian Defence Beyond 2010 — The Way Ahead: An RMA Concept Paper* (Ottawa: NDHQ, RMA Operational Working Group, 31 May 1999), p. vi.

[5] The *Future Security Environment* (Kingston, ON: Directorate — Land [Force] Strategic Concepts Report No 99-2, August 1999).

[6] " . . . From the Sea: Preparing the Naval Service for the 21st Century" Sep. 1992 at **http:// www.chinfo.navy.mil/navpulib/policy/fromsea/fromsea.txt**; and "Forward . . . From the Sea" Nov. 1994 at **http://www.chinfo.navy.mil/navpulib/policy/fromsea/forward.txt**.

In 1994, ***Forward ...From the Sea*** updated and expanded those earlier strategic concepts to specifically address the unique contributions of naval expeditionary forces in peacetime operations, as well as when responding to crises and participating in regional conflicts.

Joint Vision 2020.[7] This work builds upon the concepts established by ***Joint Vision 2010*** for the transformation of the US Armed Forces. It lays emphasis upon joint forces as the key to operational success due to their flexibility and responsiveness. It points to information superiority as a key enabler in the development of the operational capabilities of the joint force and articulates a vision that accepts the importance of technology and technical innovation, while also stressing that they must be accompanied by innovation in organisation and doctrine.

The Fundamentals of British Maritime Doctrine (BR 1806, 2nd ed.).[8] The first edition of this publication appeared in 1995, intended primarily to educate naval professionals and laymen alike in the principles underlying maritime doctrine. As an introduction to the study of maritime strategy and its influence on international relations, it is an indispensable reference. This is perhaps best demonstrated by the fact that, even though the second edition follows upon the United Kingdom's Strategic Defence Review of 1998, the only substantial changes result from incorporation of the subsequent work of *The United Kingdom Doctrine for Joint and Multinational Operations (UKOPSDOC)*.

Defence 2000: Our Future Defence Force — Australian Defence White Paper[9] Representing a comprehensive review of Australian defence policy, *Defence 2000* provides a clear articulation of Australia's strategic and force structure objectives into the 21st century. While the "priority task" for the Australian Defence Force (ADF) remains the defence and security of Australia and its direct approaches, the White Paper places new emphasis on the ADF's participation in international-particularly regional-stability operations including peace-enforcement and humanitarian assistance.

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[7] *Joint Vision 2020* (Washington, DC: US Government Printing Office, June 2000).

[8] *The Fundamentals of British Maritime Doctrine* (BR 1806, 2nd ed.) (London: Her Majesty's Stationery Office, 1999).

[9] *Defence 2000: Our Future Defence Force* (Canberra: Department of Defence, 2000) at **http://www.defence.gov.au**

To ready the ADF for the array of potential contingencies from conventional war to Operations Other Than War (OOTW), *Defence 2000* mandates a strengthened force structure (to 54,000 full time personnel by 2010), additional funding for new and upgraded capabilities across all three services, and the maintenance of a strong alliance with the United States.

- ***Netherlands Defence White Paper 2000.***[10] Although this official government statement confirms that the Dutch military will have to be able to respond across the whole spectrum of conflict from major war to the provision of humanitarian aid, it projects forces optimised more for crisis management than collective defence. In underscoring the importance of interoperability in command and control in securing future goals, while also seeking to achieve a higher degree of jointness, it provides direction regarding several important forward-looking strategic goals. Among these, the Dutch navy will explore the feasibility of acquiring a maritime-based theatre missile defence capability; it will act to enhance its strategic sealift capability; and, it will investigate the feasibility of fitting this new ship with a joint headquarters capability.

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[10] *Netherlands Defence White Paper 2000* (Netherlands, Ministry of Defence, 1999).

APPENDIX B

FORCE PLANNING SCENARIOS

No.	Scenario	Summary
1	*Search and Rescue in Canada*	Sub-scenarios include rescue from a ship at sea, search and rescue of an overdue hunting party in the North, and the rescue of survivors from a major airliner downed in a remote area in the North.
2	*Disaster Relief in Canada*	Assist in the relief of human suffering and assist authorities to re-establish the local infrastructure after a major earthquake on the west coast of Canada.
3	*International Humanitarian Assistance*	As part of a UN operation, assist with the delivery of relief supplies to refugees amassed in a central African nation.
4	*Surveillance \ Control of Canadian Territory and Approaches*	Assist Other Government Departments and law enforcement agencies in identifying, tracking and, if required, intercepting platforms suspected of carrying contraband goods or illegal immigrants before or after entering Canadian territory.
5	*Protection and Evacuation of Canadians Overseas*	Assist DFAIT, as part of a combined force, in the protection and evacuation of Canadian nationals in a foreign nation threatened by imminent conflict.
6	*Peace Support Operations (Chapter 6)*	Participate as part of a UN peacekeeping force maintaining a cease-fire and assisting in the creation of a stable and secure environment where peace building can take place.
7	*Aid of the Civil Power*	Assist civil authorities in the establishment of law and order in an area where lawlessness has occurred as the result of disputes over the control of water rights in a time of severe drought.
8	*National Sovereignty/ Interests Enforcement*	Claiming extended jurisdiction under UNCLOS III, Canada has requested the cessation of seabed exploitation operations by a foreign nation. The CF will assist OGDs in the enforcement of Canadian claims.
9	*Peace Support Operations (Chapter 7)*	At the request of a foreign nation, as part of a UN coalition, the CF will participate in operations to restore pre-conflict boundaries and return control of an occupied area to the control of the rightful country.
10	*Defence of Canada/ US Territory*	In cooperation with US forces, the CF will defend Canada/US territory against potential threats initiated by an emerging world power as a result of Canadian and American support for a foreign military operation.
11	*Collective Defence*	As part of a NATO force, the CF will attempt to deter and, if necessary, contain an attack on NATO territory and conduct restoration operations.

[1] DP 2001 Table 4-8.

NAVAL FUNCTION	SAR 1	DISASTER RELIEF 2	HA 3	SURVEILLANCE 4	EVACUATE CANADIANS 5	CHAP 6 PSO 6	ACP 7	SOVEREIGNTY 8	CHAP 7 PSO 9	DEFEND N.A. 10	COLLECTIVE DEFENCE 11
MILITARY ROLE											
Command of the Sea	*This function is an enabler for most other functions*										
Sea Control				X		X		X	X	X	X
Sea Denial								X	X	X	X
Battlespace Dominance	*This function is an enabler for Maritime Power Projection*										
Fleet-in-Being								X			X
Maritime Power Projection					X	X			X		X
Maritime Manoeuvre	*This function is an enabler for most other functions*										
CONSTABULARY ROLE											
Sovereignty Patrols				X				X			
Aid of the Civil Power (ACP)							X				
Support to Other Government Departments (OGD)		X		X			X	X		X	
Search and Rescue (SAR)	X										
Oceans Management								X			
Disaster Relief		X									
DIPLOMATIC ROLE											
Preventive Deployments					X	X		X			
Coercion									X		
Maritime Interdiction Operations (MIO)						X		X	X	X	
Peace Support Operations (PSO)			X			X			X		
Non-combatant Evacuation Operations (NEO)			X		X	X			X		
Civil-Military Cooperation (CIMIC)	*This function has applications in all functions/scenarios*										
Symbolic Use					X	X		X			
Presence					X	X	X	X	X	X	X
Humanitarian Assistance (HA)			X			X			X		
Confidence Building Measures (CBM)						X					
Track Two Diplomacy						X					

NAVAL ROLES & FUNCTIONS AND THE FORCE PLANNING SCENARIOS

APPENDIX C

CANADIAN MARITIME OPERATIONS, 1945-2001

DATE	FORCES	OPERATION	LOCATION	TYPE
1946-1960	• 1 X Destroyer and up to Brigade Group	Mobile Striking Exercises	Canadian Arctic	• Sovereignty Patrols • Maritime Manoeuvre (planned)
1949	• 1 X Destroyer	CANAVHED 1-49	China	• NEO (planned) • Presence
1950	• 1 X Destroyer	B-36 Crash	British Columbia	• Nuclear SAR mission
1950	• RCN(R) Shore Establishment • No. 11 Group, RCAF • RCA School • CAJTC Rivers • 16 Bde (M) • RCAF tpt units	Op REDRAMP Op BLACKBOY Op RAINBOW (Red River Flood)	Manitoba	• Disaster Relief
1950-1957	• 3 X Destroyer • 1 X Brigade Group • 428 Transport Sqn	UN Police Action	Korea	• Sea Control • Battlespace Dominance • Maritime Power Projection • Maritime Manoeuvre • MIO • Peace Support Operations • Humanitarian Assistance
1952	• 1 X Aircraft Carrier		Egypt	• NEO (planned) • changed to Presence
1952	• RCN Shore Establishment • 1 X helicopter	Firefighting	Nova Scotia	• Disaster Relief
1954-1973	• Military Observers	ICSC Indochina	Laos, Cambodia, North and South Vietnam	• Confidence Building Measures
1956	• 300 pers (Militia and Regs) • RCN helicopters • RCAF tpt sp	Springhill mine disaster	Nova Scotia	• Disaster Relief
1956	• 6 X Destroyers		St Lucia	• Coercion • NEO (planned)
1956-1957	• 1 X Aircraft Carrier, • Landing Craft • 2 X helicopters • Can Contingent UNEF	Op RAPID STEP (UNEF I)	Egypt	• Preventive Deployment • Peace Support Operation • Humanitarian Assistance • Confidence Building Measures

DATE	FORCES	OPERATION	LOCATION	TYPE
1958-1963	• Aircraft Carrier task group • Maritime Patrol Aircraft (MPA)	Op GRAND BANKS	Atlantic Coast	• Sea Denial • Coercion
1960s	• Usually Battalion Group • 1-2 X Destroyer • 1 X Operational Support Vessel (AOR)	Defence of Canada Force Exercises	East and West Coasts	• Sovereignty Patrols • Presence
1960	• RCN medical personnel • RCAF transport aircraft	Earthquake	Chile	• Humanitarian Assistance
1960s	• 1 X Brigade Group • RCAF base units PEI • RCN S-55 helicopters	Firefighting	Maritimes	• Disaster Relief
1961	• 1 X Destroyer	Post-Bay of Pigs Crisis	Cuba	• Peace Support Operation (planned) • Confidence Building Measures
1962	• East Coast RCN and RCAF	Cuban Missile Crisis	Atlantic Ocean	• Sea Control • Coercion
1962	• Maritime Patrol Aircraft	Post-Cuban Missile Crisis	Cuba	• Peace Support Operation (planned) • Confidence Building Measures
1963	• 1 X Destroyer • 1 X Aircraft Carrier • 1 X infantry battalion		Haiti	• NEO (planned) • changed to Presence
1964	• 1 X Aircraft Carrier • 1 X Destroyer • 1 X battalion group	Op SNOW GOOSE (UNFICYP)	Cyprus	• Preventive Deployment • Peace Support Operation • Humanitarian Assistance • Confidence Building Measures
1965	• Shore Establishment (215 pers)	Collapsed Building	Quebec	• Disaster Relief
1965-Present	• 1 X DDH / FFH • occasionally augmented by AOR	STANAVFORLANT	NATO Area	• Preventive Deployment • Presence • Fleet In Being • Confidence Building Measures
1966	• 3 RCHA (artillery rgt) • CFB's Gimli, Rivers, Shilo, Portage La Prarie • HMCS Chippawa • HMCS Cape Breton (shore establishments) • 10 Coy RCASC	Flood Relief	Winnipeg, Manitoba	• Disaster Relief

DATE	FORCES	OPERATION	LOCATION	TYPE
1967	• 3 X DDE • 1 X AOR • air transport • CANCON UNEF I	Op LEAVEN (UNEF I withdrawal)	Egypt	• Evacuation of UNEF I (planned) • Changed to Peace Support Operation • Presence
1969	• Argus MPA sqn	Op HOT LINE	Vietnam	• Confidence Building Measures (planned)
1970s	• 1 X AOR • 1 X DDH • 3 X DDE • 1 X SSK • MPA sqn	Sovereignty Operations	Canada	• Sovereignty Patrols
1970	• Fleet Diving Unit (Atlantic) • Combat engineering regiment	Op ARROW OIL	Chedabucto Bay, NS	• Oceans Management
1973	• 1 X DDE (2 rotations)	Op WESTPLOY 1/73 Op WESTPLOY 2/73	Vietnam	• ICCS evacuation (planned) • Presence
1973-79	• 1 X AOR • sigs, log, MP, air tpt • 3 X Twin Huey • 3 X Buffalo	Op DANACA (UNEF II)	Egypt	• Preventive Deployment • Peace Support Operations • Humanitarian Assistance • Confidence Building Measures
1973	• 1 X DDE • 1 X Argus MPA	Drug Interdiction	British Columbia	• Support to OGD
1974	• 2 X DDH		Grenada	• NEO (planned) • changed to Presence
1974	• 4 X DDH • 1 X AOR • 2 X Argus MPA		Portugal	• NEO (planned) • changed to Presence
1976	• 3 X Bde Gp • 1 X CF-5 sqn • 1 X AOR • 5 X DDH • Fleet Diving Unit	Op GAMESCAN 76	Canada	• Support to OGD
1979	• 3 X DDH • 1 X AOR • 1 X inf bn		Jamaica	• NEO (planned) • Maritime Manoeuvre (planned)

DATE	FORCES	OPERATION	LOCATION	TYPE
Jul 1981	• (500 pers) • 10 X Kiowa • 17 X Twin Huey • 6 X Chinook • Fleet Diving Unit • CF-5 ftr spt • NDMC	Ottawa G-7 Summit	Ottawa, Ontario	• Support to OGD
Jan 1983	• 2 Bn RNR • Flt Diving Unit	Flood Relief	Newfoundland	• Disaster Relief
1986	• infantry battalion • 15 Fd Rgt RCA (artillery) • 1 X DDE • Fleet Diving Unit Pacific	EXPO 86	British Columbia	• Support to OGD
1988	• 1 X DDE • 2 X DDH • 1 X AOR • inf Bn	Op BANDIT	Haiti	• NEO (planned); changed to Presence
1989	• 1 X AOR • 2 X C-130 • Composite Engr unit	Hurricane Hugo	Montserrat	• Humanitarian Assistance
1989-1992	• Naval observers	Op SULTAN (ONUCA)	Nicaragua	• Peace Support Operation
1991-1994	• Naval observers	Op MATCH (ONUSAL)	El Salvador	• Peace Support Operation
1990-91	• DDH, DDE, AOR • 2 X CF-18 sqn • field hospital	Op FRICTION	Arabian Gulf	• MIO • Coercion • Sea Control • Battlespace Dominance
1990	• 1 X Brigade Group • 1 X MPA • River patrol craft	Op SALON (Oka standoff)	Quebec	• Aid of the Civil Power
1991-1994	• Military observers	Op BOLSTER (ECMM)	Former Yugoslavia	• Peace Support Operation
1991-93	• transport company • engineer staff (240 pers) • naval observers (9 CF pers)	Op MARQUIS (UNTAC)	Cambodia	• Peace Support Operation • Confidence Building Measures

DATE	FORCES	OPERATION	LOCATION	TYPE
1991	• 1 X DDH	Op FLAG	Arabian Gulf	• MIO
1991-1992	• 1 X AOR • 3 X DDH or DDE • Infantry Company	Op ESCORT	Haiti	• NEO (planned)
1992	• 1 X DDE	Op BARRIER	Red Sea	• MIO
1992-93	• Canadian Airborne Battle Group • 1 X AOR • 3 X Sea King • C-130 spt	Op DELIVERENCE Op CORDON (UNITAF, UNOSOM II)	Somalia	• Peace Support Operations • Humanitarian Assistance • Presence
1992-1995	• 1 X FFH or DDH (7 rotations) • 1 X AOR (2 rotations) • 2 x MPA (2 rotations)	Op SHARP GUARD	Adriatic Sea	• MIO • Coercion • Maritime Power Projection
Sep-Oct 1992	• 1 X AOR • composite engineer unit • air tpt spt (429 Sqn)	Op TEMPEST (Hurricane Andrew)	Florida, USA Bahamas	• Humanitarian Assistance
1993-94	• 2 X DDE/FFH or DDH (10 rotations) • 1 X AOR	Op FORWARD ACTION Op DIALOGUE	Haiti	• Coercion • NEO (planned) • Presence
1993	• 1 X SSK	Op AMBUSCADE	Georges Bank	• Support to OGD
1993	• Diving Support Vessel • Maritime Patrol Aircraft	Op JAGGY	Atlantic Ocean	• Support to OGD
1993	• Diving Support Vessel • Maritime Patrol Aircraft	Op HOGAN	Atlantic Ocean	• Support to OGD
1993	• Diving Support Vessel • Maritime Patrol Aircraft	Op HERALD	Atlantic Ocean	• Support to OGD
1993	• Diving Support Vessel • Maritime Patrol Aircraft	Op SIMORG	Atlantic Ocean	• Support to OGD
1993, 1996	• Diving Support Vessel	Op IRVING WHALE	Gulf of St Lawrence	• Support to OGD • Oceans Management
1993	• Maritime Patrol Aircraft	Op BELT	Atlantic Ocean	• Support to OGD
1993	• 1 X AOR • 3 X DDH or DDE • infantry company	Op DIALOGUE	Haiti	• NEO (planned); changed to Presence

Date	Forces	Operation	Location	Type
1994	• 1 X DDE • Maritime Patrol Aircraft	Op JULES	Atlantic Ocean	• Support to OGD
1995	• Maritime Patrol Aircraft	Op HEARTH	Atlantic Ocean	• Support to OGD
Feb-Apr 1995	• 1 X FFH	Op PROMENADE	Abu Dhabi	• Presence • Support to OGD
1995	• Brigade Group • 3 X AOR • 3 to 6 FFH/DDH • CF-18 Sqn	Op COBRA	Adriatic Sea	• UNPROFOR evacuation (planned)
1995	• 1 X FFH	Op TRANQUILLITY	Arabian Gulf Pacific Rim	• MIO • Support to OGD
1995	• 1 X DDE • Maritime Patrol Aircraft	Counter-Illegal Immigration Operations	Atlantic Ocean	• Support to OGD
1995	• 4 X FFH/DDE • 1 X SSK • Aurora MPA	Op OCEAN VIGILANCE ('Turbot War')	Grand Banks	• Support to OGD • Presence • Fleet in Being
1995	• Fleet Diving Unit (Atlantic) • HMCS YORK	Op NIMROD	Lake Ontario	• SAR
1996	• 1 X DDE • Maritime Patrol Aircraft	Op HIVE	Atlantic Ocean	• Support to OGD
1997	• 1 X SSK	Op GROUSE	Grand Banks	• Support to OGD
1997	• 2 X Brigade Group • Air lift • Shore Establishment • 4th Maritime Operations Group HQ • Fleet Diving Units (Atlantic and Pacific)	Op ASSISTANCE (Flood Relief)	Manitoba	• Disaster Relief
1997	• Shore establishment • 1 X FFH	Op MANDIBLE (APEC Summit)	Vancouver, BC	• Support to OGD
1997	• 1 X FFH	Op PREVENTION	Arabian Gulf	• MIO
1998	• Fleet Maintenance Facility • Shore units	Op RECUPERATION	Eastern Canada	•Disaster Relief

DATE	FORCES	OPERATION	LOCATION	TYPE
1998	• 1 X FFH • 2 X KC-130	Op DETERMINATION	Arabian Gulf	• Coercion • MIO
1998-2001	• 1 X FFH (5 rotations to date) (ongoing)	Op MERCATOR Op AUGMENTATION	Arabian Gulf	• MIO
1998	• 1 X AOR • 1 X SSK • 2 X FFH • 4 X MCDV • Fleet Diving Units (Atlantic and Pacific) • Experimental Diving Unit • 4 X Army Combat Diving Teams • 4 X MPA • 1 X inf bn	Op PERSISTENCE (Swissair MAJAID)	Nova Scotia	• Disaster Relief
1999	• Fleet Diving Unit (Atlantic) • ADAC TRINITY • 1 X MCDV	Op ASENSION / CLAIRE LILLEY	Halifax Approaches	• Oceans Management
1999-2000	• 1 X AOR • 1 X C-130 (sometimes) • 1 X inf coy gp	Op TOUCAN (INTERFET)	East Timor	• Peace Support Operation • Humanitarian Assistance • Confidence Building Measures
2000	• 1 X DDG • 1 X FFH • 1 X MPA	Op MEGAPHONE (GTS Katie Affair)	Gulf of St Lawrence	• Coercion

APPENDIX D

FUTURE NAVAL ASSESSMENT

The following commentary provides the basis for *Leadmark*'s analysis of the future naval challenges that could be encountered by Canada and its allies in 2020. The commentary is derived from the Directorate of Maritime Strategy internal working paper, "A Naval Assessment for 2020" (n.p.) in addition to the section entitled "Threats to Naval Forces 1997-2015" contained in *Adjusting Course*. The discussion incorporates the typology of navies introduced in Part 3 of *Leadmark*, and is grouped along geographic lines, concentrating on regions outside the NATO area with the exception of the eastern Mediterranean.

Latin America

Given the growth of democracy, the reduction in interstate tension, and the declining influence of militaries in politics throughout much of Latin America, many regional armed forces have been substantially reduced. As of the late 1990s, most militaries were working largely with outdated weapons and materiel. The last major updating of regional armed forces occurred in the late 1970s. As a result, there is a requirement for large-scale modernisation. Nevertheless, most regional forces are forecast not to enjoy significant modernisation (the exception being those pressured by the US for use in counter-drug operations). Generally, governments have more pressing internal socio-economic issues to address (such as widespread poverty) that require non-military solutions.

Whether modernised or not, however, the major military forces of the Latin American states are, and will likely remain, land forces. In the late 1990s, naval and maritime-capable air forces in the region were relatively small and no change in this situation by 2020 is forecast. In the Caribbean and Central America, maritime forces are marginal in size, with most states possessing only a few coastal patrol vessels. Given the cost of modern ocean-going warships and maritime weapon systems, coupled with the low probability of external attack on their borders, it is considered unlikely that these states will acquire any significant naval capabilities over the next two decades. Thus, only Token or Constabulary Navies are anticipated. Several South American navies likely will undergo some modernisation of weapons, sensors and command and control systems. Many will no doubt remain technically and tactically proficient, possibly falling in the realm of Offshore Territorial Defence Navies. Nevertheless, with the possible exception of Argentina and Chile, they are projected to remain marginal in size and capabilities compared to the leading NATO naval forces.[1]

Eastern and Southeastern Europe

Future inter- and intra-state conflict in the eastern and southeastern regions of Europe, similar to that experienced in the Balkans during the 1990s, cannot be ruled out.[2] The potential for friction in 2020 between Russia and the states on its western borders likewise cannot be ignored. That said, bar perhaps Russia (see below), the states conceivably involved in either eventuality currently possess marginal (or no) maritime capabilities and no change to this situation is forecast over the next two decades.

Although they are NATO allies, the possibility that Greece and Turkey might become involved in an armed dispute with respect to Cyprus or the Aegean likely will be sustained out to 2020. In this context, both Greece and Turkey are, and are forecast to remain, capable of projecting military force short of nuclear weapons. In the maritime environment, both states have a mix of older vessels and aircraft, and state-of-the-art equipment including modern missiles and fire control systems fitted in surface combatants, and modern torpedoes for use by their submarine forces. Each nation seems likely to continue the practice of remaining no more than one generation behind the leading naval powers through the maintenance of capable Adjacent Force Projection Navies. Accordingly, if any of the CF force planning scenarios were to be played out in the context of an eastern Mediterranean conflict (see separate discussion of the Middle East and North Africa below), state-of-the-art weapons systems in many maritime warfare disciplines must constitute a planning factor.

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[1] Much of this section is derived from H.P. Klepak, *Current Strategic and Military Trends in Latin America*, Research Note No. 99/02 (Ottawa: Directorate of Strategic Analysis, Department of National Defence, February 1999).

[2] Zalmay Kahlilzad and Ian O. Lesser (eds.), *Sources of Conflict in the 21st Century: Regional Futures and US Strategy* (Santa Monica, CA: RAND, 1998), p. 235.

Russia

The Russian Federation inherited most of the Soviet Union's military personnel and equipment, but not the same level of resources, or the state organisation needed to maintain them.[3] Since the early 1990s, the Russian navy has been suffering from a shrinking industrial and logistics base. As early as 1991, shipbuilding firms had started converting to other areas of interest and new ships were often delivered unfit for service.[4] Submarine construction was all but halted in 1998. In 1999, the Chief of the Russian Navy declared that his budget was insufficient to cover existing debts to contractors and suppliers, irrespective of modernisation or operational concerns.[5] In the same year, *Jane's Fighting Ships* stated that many of the Russian Navy's vessels were unlikely to be capable of proceeding to sea.[6] If Russia's economic difficulties persist[7] and additional resources are not allocated to the navy, the country's maritime capability is likely to continue to decline over the next two decades. At the present rate of construction (as of 1999 no new production of surface vessels was planned prior to 2005), by 2020 the fleet size will be greatly reduced and most units will have exceeded 20 years of service.[8] A viable sea-based nuclear deterrent would nevertheless remain.

However, should Russia overcome its domestic problems, and move down the path of prosperity and democratic reform, it is reasonable to assume that, eventually, substantial military revitalisation would occur. The modern and capable Russian armed forces to emerge likely would be much smaller than the 1990s model, and would be designed with the primary goal of ensuring Russian security within the world system as part of a collective or common security regime.[9] With the exception of the sea-based nuclear capability, military reform likely would be focussed — at least initially — on the reestablishment of credible land and air forces. During the Cold War, the Soviet Union justified its need for a large, balanced blue water navy as a means of defending the SSBN force, as well as preventing seaborne assaults on the homeland by interrupting the North Atlantic Sea Lines of Communication (SLOC) in the event of war. The USSR also used this impressive maritime force to project power on a global scale, thus impressing upon allies, client states, or neutrals that the United States was not the sole super power.[10] A democratic Russia within a common security regime, however, likely would not see the same strategic imperatives. The days would be gone when a large maritime capability could be justified on the basis of imminent Western attack from the sea.

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[3] Michael Mandelbaum, *The Dawn of Peace in Europe* (New York: The Twentieth Century Fund Press, 1996), p. 142.

[4] C.A.M. Parrish, *The Future of the Soviet Navy* (Sandhurst: Soviet Studies Research Centre, RMA Sandhurst, 1991) p. 3.

[5] Richard Sharpe (ed.), *Jane's Fighting Ships 1999-2000* (Coulsdon: Jane's Information Group Limited, 1999), p. 78; A.D. Baker III, "World Navies in Review", *United States Naval Institute* (USNI) Proceedings 124:3 (March 1998), p. 79.

[6] Sharpe (ed.), *Jane's Fighting Ships 1999-2000*, p. 78; Parrish, *The Future of the Soviet Navy*, p. 3.

[7] As of 1999, Russia's GDP had contracted by 43% since 1991. See United States, Central Intelligence Agency, *World Fact Book 1999* — Russia at **http://www.odci.gov/cia/publications/factbook/rs.html**, p. 7.

[8] Sharpe (ed.), *Jane's Fighting Ships 1999-2000*, p. 78; A.D. Baker III, "World Navies in Review", *USNI Proceedings* 122:3 — 125:3 (March 1996-99).

[9] G.P. Armstrong, *Russia in 2005: Security and Foreign Policy*, (Ottawa: Directorate of Strategic Analysis, Department of National Defence, October 1997), p. 9; Mandelbaum, *The Dawn of Peace in Europe*, p. 123.

By the same token, a return to authoritarianism in Russia cannot be discounted out of hand. Were this to occur, Russian military — including maritime — power might well be built up to a level that could pose a serious threat to its neighbours and world order. However, it is equally likely that there would be adequate warning time for other states to respond.[11]

Sub-Saharan Africa

Whether or not in 2020 sub-Saharan Africa faces poverty, corruption, internal strife and reliance on foreign aid,[12] the future of the region's naval assets appears relatively constant. With the exception of South Africa,[13] the existing naval and maritime capabilities of sub-Saharan countries are negligible. The few ships that do exist generally are in poor repair and rarely seen at sea. To remedy this situation would require a large capital investment — unlikely, given the region's other pressing socio-economic problems. Moreover, even if the required capital were to be made available, it is unlikely that the low levels of education, literacy and access to modern technology that characterise the region would be overcome in two decades.[14] Accordingly, Canadian and allied naval forces deployed to this theatre in 2020 are projected to encounter no more than Constabulary Navies.

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[10] See Norman Friedman, "The Soviet Navy in Transition", *Soviet Power: The Continuing Challenge* (London: The Macmillan Press Ltd., 1987), pp. 236-248.

[11] Mandelbaum, *The Dawn of Peace in Europe*, p. 145.

[12] For a forecast of an African future fraught with difficulties see Robert D. Kaplan, "The Coming Anarchy", *The Atlantic Monthly* 273:2 (February 1994), pp. 47-76. In contrast, a more positive projection may be found in John Stackhouse, "Democracy's big year", *The Globe and Mail*, 30 Dec 00, pp. A9-A10.

[13] See Sharpe (ed.), *Jane's Fighting Ships 1999-2000*. The South African Navy comprises a limited force projection fleet, including diesel submarines, missile equipped fast attack craft and fleet replenishment capabilities. These forces have been maintained to high technical standards and are regularly exercised at sea. In December 1999, South Africa also placed orders for 3 new Type 209 submarines and 4 MEKO A200 patrol corvettes. See Helmoed-Romer Heitman, "South Africa signs orders for $5 billion", *Jane's Defence Weekly* 32:23 (December 8, 1999), p. 3.

[14] In 1998, the region had the lowest GDP of any in the world, and the second highest adult illiteracy rate and the lowest gross education enrolment ratio at all levels. See **http://www.worldbank.org**.

Middle East and North Africa

The Middle East and North Africa (MENA) region is an area of global strategic importance in view of its access to 65 to 75 percent of known oil reserves.[15] It is and likely will remain one of the most highly militarised parts of the world. Most MENA states, however, have traditionally concentrated on the development of land and air instead of naval forces. Based on the historical nature of most of the inter-state disputes in the region, and the greater usefulness of land and air forces in internal security operations, most MENA states have no need for a greater capability than offshore territorial defence. This trend is forecast to continue. Consequently, in 2020, MENA naval forces likely will remain small in number and largely coastal in capabilities. In fact, given the relatively small ocean area within the region, there will continue to be little impetus for any country to acquire a blue water capability.[16] In 1999, MENA naval forces generally were made up of smaller missile armed craft. The vessels and weapons ranged from obsolescent to the latest available export versions. The tactical and technical skills of personnel also spanned the spectrum from inefficient novices to well trained professionals. Such diversity is unlikely to change by 2020, with regional maritime forces ranging from Token Navies to Offshore Territorial Defence Navies (the exception is Israel, which maintains an adjacent force projection capability). That said, it is significant to note that many states along the southern shore of the Mediterranean already possess shore based surface-to-surface and air-to-surface missiles capable of interdicting the SLOC and engaging transiting shipping.[17] Given the increasing ranges and targeting proficiency of land-based missile systems, and their relative simplicity and lower costs compared to naval platforms, many states are forecast to maintain and upgrade this type of capability.

Northeast Asia

Northeast Asia, which encompasses China, Taiwan, Japan, and South and North Korea, is another of the most heavily armed regions in the world, particularly with respect to naval power. With several countries engaged in significant defence modernisation programs, and faced with ongoing cultural-political tensions and resource disputes, the region is forecast to remain highly militarised in 2020.

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[15] Khalilzad and Lesser (eds.), *Sources of Conflict in the 21st Century*, p. 173; Milan Vego, "Multinational Naval Cooperation in the Middle East and Mediterranean: Problems and Prospects," in Fred W. Crickard, Paul T. Mitchell and Katherine Orr (eds.), *Multinational Naval Cooperation and Foreign Policy into the 21st Century* (Aldershot, England: Ashgate, 1998), pp. 195-219.

[16] Although the Mediterranean Sea is over 2,300 nm in length from Gibraltar to Syria, its maximum width is only about 500 nm; no point is further than 230 nm from shore. The Gulf is about 230 nm across at its widest point.

[17] Ingo Vormann, "NATO's Star Rises in the Med", *USNI Proceedings* 125:3 (March 1995), pp. 77-78.

China — An increase in Chinese maritime power over the next two decades is expected, although the extent will be influenced by the prosperity of the Chinese economy,[18] not to mention political stability. For more than thirty years the major concern of China was continental defence, stemming largely from the threat of a Soviet armoured invasion which was to be met with a deep defence and the perpetration of the "People's War" on a massive scale. In the 1980s, China began to amend that strategy and place maritime development on par with continental defence. This was partly in response to a rapprochement with Russia, a growing appreciation of the value of the coastal regions to the policy of market reform, and a greater emphasis on preparations for limited regional wars (possibly over Taiwan or the resources of the South China Sea) rather than a war of national survival.[19]

Chinese maritime force development is focussed on the acquisition of more technologically advanced vessels and weapons systems (often of Russian design[20]), including those that will deliver a measure of blue water capability. The People's Liberation Army Navy (PLAN) is striving to develop carrier aviation by 2020 in order to offset its lack of air defence and power projection,[21] and has already developed several missile families, Ming class submarines, and a variety of small combatants. Nevertheless, the development by 2020 of a modern blue water navy of global reach along US lines is unlikely. The reasons for this include: Russian technology often lags behind Western designs; the Chinese face considerable challenges, both in terms of personnel and financial support, in mastering the tactical use of systems;[22] and the indigenous production of numerous modern vessels is hampered by outdated and unreformed shipyards.[23]

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[18] While some analysts forecast that the Chinese economy may be the largest in the world by 2020 (Andrew R. Wilson, "Chinese Seapower in the 21st Century: Aspirations and Limitations", Paper delivered at the Seapower at the Millennium conference, Portsmouth, 12-14 January 2000, [n.p.]; Khalilzad and Lesser [eds.] *Sources of Conflict in the 21st* Century, p. 103), others are less optimistic, pointing to ongoing problems including uneven economic development, poor infrastructure and widespread corruption and unemployment (Gerald Segal, "Does China Matter?" *Foreign Affairs* 78:5 [Sept/Oct 1999], pp. 24-36; *World Fact Book 1999* — China. p. 6; R. P. Jakubow et al. *Strategic Overview 1999*. Project Report No. 9917 [Ottawa: Directorate of Strategic Analysis, Department of National Defence, 1999], p. 8).

[19] Wilson, "Chinese Seapower in the 21st Century".

[20] Examples are the two *Sovremennyy*-class destroyers. The *Sovremennyy's SSN22* and *SAN 7* systems will give China sophisticated surface-to-surface and anti-air capabilities. See *USNI Proceedings*, 124:3 (March 1998), p. 89.

[21] Doubtless, this is also a prestige issue given that both India and Thailand (both regional competitors) possess aircraft carriers. See S.E. Speed, *The Maritime Forces of East Asia and the Western Pacific*, Project Report No. 9821 (Ottawa: Directorate of Strategic Analysis, Department of National Defence, December 1998), p. 23; George S. Capen, "Wei-chi: The Game of War," in *USNI Proceedings* 125:8 (August 1999), p. 61.

[22] See Christopher S. Parker, "New Weapons for Old Problems: Conventional Proliferation and Military Effectiveness in Developing States," in *International Security*, 23:4 (Spring 1999), pp. 119-147.

[23] Wilson, "Chinese Seapower in the 21st Century".

In summary, Chinese naval forces are projected to undergo continued modernisation and to remain among the largest in Asia. By 2020, the PLAN will likely possess a small, modern, blue-water component with the full range of naval capabilities, thus securing China's possession of an Adjacent Force Projection Navy.[24] Technologically and tactically, this force is likely to remain behind Western navies, although the gap will continue to narrow.

Japan- As a major trading nation, and one which is highly dependent on the sea to support its economy and feed its population,[25] the security of Japan's sea lines of communications will remain vital to its national interest. Indeed, the regional sea-lanes through Southeast Asia and the South China Sea (to which a number of states lay claim) are crucial to Japan's future prosperity. Accordingly, a strong case can be made that by 2020, Japan will have maintained, if not increased, the size and capabilities of its maritime forces.[26] The need to increase its capabilities may be spurred on by an American desire to have allies share a greater portion of the security burden in the Asia-Pacific region. (As part of the US-Japan Security Treaty, Japan has already begun to play a greater role, accepting since 1981 to maintain a defensive perimeter out to 1000 nm from Tokyo.[27]) Furthermore, were the United States to substantially reduce its forward deployed forces from the region, Japan likely would be compelled to reconsider the constitutional restrictions on the development of its armed forces.

There is much to suggest that the continued modernisation of Japan's maritime force is within comfortable reach. Japan has probably the "greatest capacity of any regional state to reconfigure its forces rapidly to cope independently with possibly dangerous contingencies."[28] The country has a large, mature economy that is characterised by a well-educated population, a strong work ethic, a mastery of high technology and a history of government-industry co-operation. With this background, and provided there is the necessary political will, some observers estimate that Japan would be capable of producing two fully operational aircraft carrier battle groups within five years. It is also estimated that, maritime forces

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24 This will include not only surface, air and subsurface capabilities but also possibly an imaging and strike capability using space assets. See *Jane's Defence Weekly* 29:7 (February 18, 1998), p. 26; and Frank Gaffney, "China Threatens to Thwart US Domination of Space," *Defence News* 14:49 (December 13, 1999), p. 19.

25 For example, Japan is almost totally reliant upon the importation of oil for energy production. See United States, Central Intelligence Agency, *World Fact Book 1999* — Japan at **http://www.cia.gov/cia/publictions/factbook/ja.html**, p. 6.

26 As of 2000, the major combatant strength of Japan's Maritime Self-Defence Force (MSDF) consisted of 18 SSKs, 40 destroyers, 15 frigates and 93 updated P3C II/III aircraft capable of maritime patrol, anti-submarine warfare and maritime strike roles. See Sharpe (ed.), *Jane's Fighting Ships 1999-2000*, pp. 374-402.

27 Speed, *The Maritime Forces of East Asia and the Western Pacific*, p. 8.

28 Speed, *The Maritime Forces of East Asia and the Western Pacific*, p. 9; in a similar vein, *Jane's Fighting Ships* states that Japan has a construction program that "runs like clockwork." Sharpe (ed.), *Jane's Fighting Ships 1999-2000*, p. 83.

aside, Japan could quickly reconfigure its satellite delivery rockets into accurate ICBMs and transform its surplus nuclear materials into 1000-2000 nuclear warheads within months.[29] In short, although not without future challenges (for example, an ageing population could adversely affect the domestic economy[30]), the possibility by 2020 of Japan evolving into a major regional, if not global, military power cannot be ignored. A Japanese Medium to Major Global Force Projection Navy in 2020 is plausible.

Taiwan and the Korean Peninsula — The possibility of conflict between Taiwan and China over moves by the former toward independence is real. As the preceding commentary suggests, if this were to occur in the 2020 time frame, a more technologically advanced and regional force projection PLAN likely would be involved. Chinese coastal missile forces also could prove a factor. In view of this eventuality, it is reasonable to expect that over the next 20 years, Taiwan will sustain its relatively well-trained and sophisticated Adjacent Force Projection Navy with American technology and support.[31]

If hostilities were to erupt between the ideologically opposed North and South Korea over the next 20 years, maritime forces would surely be employed, although with varying degrees of effectiveness. While the naval forces of North Korea are numerous, for the most part they are largely obsolescent coastal forces, including many small submersible craft, with almost no offshore capability.[32] Given the poor state of North Korea's economy and industrial capacity, it is reasonable to forecast that this situation is not likely to change significantly over the next two decades. North Korea is unlikely to progress beyond an Inshore Territorial Defence Navy. Nevertheless, mines and theatre capable missiles could prove significant[33] (as could any involvement in regional hostilities by a more proficient blue water Chinese fleet). For their part (and bar a major economic downturn), South Korean maritime forces are likely to remain relatively technologically advanced and proficient, with an approaching blue water capability in the realm of an Adjacent Force Projection Navy.[34] Lastly, it is worth acknowledging that a reunified Korea could emerge as a formidable regional maritime power in its own right.

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[29] JoeVarner, "Canada and the Emerging Asia-Pacific Security Dilemma", *Proceedings of the First Graduate Student Symposium* (Ottawa: Conference of Defence Associations Institute, 1999), p. 13.

[30] *World Fact Book 1999* — Japan, p. 6 at **http://www.cia.gov/cia/publications/factbook/ja.html**

[31] Sharpe (ed.), *Jane's Fighting Ships 1999-2000*, pp. 413-426 and 679-694; *USNI Proceedings* 124:3 (March 1998), p. 91; *USNI Proceedings* 125:3 (March 1999), pp. 79-82. See also S.E. Speed, *A Background Study of the Taiwan Issue*, Policy Report No. 9911 (Ottawa: Directorate of Strategic Analysis, Department of National Defence, August 1999) and Speed, *The Maritime Forces of East Asia and the Western Pacific*.

[32] Sharpe (ed.), *Jane's Fighting Ships 1999-2000*, pp. 407-412.

[33] In August 1998 North Korea conducted a test launch of a Taepodong 1 MRBM. See Jakubow et al., *Strategic Overview 1999*, pp. 42, 104.

[34] South Korea has expressed a desire to expand its naval capabilities beyond coastal operations to an offshore capability. Nominally, this is to acquire the capability to provide defence to shipping and the SLOC.

Southeast Asia

In broad terms, Southeast Asia spans the Bay of Bengal, southward to Australia, and into the western Pacific. It encompasses the South China Sea, the Gulf of Thailand, the archipelagic waters of Indonesia and the Philippines, and the Andaman Sea. Brunei, Myanmar (Burma), Cambodia, Laos, Malaysia, Singapore, and Vietnam likewise fall within its span.

Southeast Asia is strategically significant and is likely to remain so twenty years hence. Forty percent of the globe's shipping transits the region and there is the potential of vast undersea resources, particularly in the South China Sea.[35] Accordingly, moves for "Control of this area by any one state would have significant effects on naval and commercial activities throughout the world."[36] Such attempts at control are a real possibility and carry with them the risk of armed conflict. Throughout the region, countries continue to hold territorial claims against one another, with no easy solution in sight.[37] There also remains considerable disagreement over sovereignty claims to waterways such as the Strait of Malacca and Singapore Strait (through which hundreds of vessels pass each day), and maritime exclusive economic zones out to the 200 nm limit, under the 1982 United Nations Convention on the Law of the Sea.[38] The internal political stability and cohesion of certain states, and regional piracy, similarly warrant acknowledgement as issues of long-term strategic concern.[39]

Alongside pirate organisations (which may be equipped with heavily armed speed boats, radar and satellite communications), the maritime forces of Southeast Asian countries are, and likely will remain, no more than Offshore

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[35] Although no systematic geological survey has been carried out, the Chinese Department of Geology and Mineral Resources claims that there are between 17.7 and 30 billion tons of oil in the vicinity of the Spratly Island chain". See Malcolm Murfett, "All Bets Are Off: The Maritime Situation in Southeast Asia in the Year 2000". Paper delivered at the Seapower at the Millennium conference, Portsmouth, 12-14 January 2000, (n.p.)

[36] S.E. Speed, *Maritime Issues and Naval Developments in Southeast Asia*, Project Report No. 9724 (Directorate of Strategic Analysis, Department of National Defence, November 1997), p. 3. An alternative construct is presented by Dan Coulter, "Global Shipping Trends and Implications for Navies", in Crickard, Mitchell and Orr, *Multinational Naval Cooperation and Foreign Policy into the 21st Century*, pp. 46-68. He postulates that in the event of a major disruption, shipping companies realistically could re-route around Australia. Whatever the merits of this argument, potentially affected nations are likely to continue to demonstrate the intent to maintain "freedom of the seas" in the region.

[37] The Philippines claims the Malaysian state of Sabah. Indonesia and Malaysia both claim the islands of Sipidan and Ligitan off the southeast coast of Sabah. Brunei claims Malaysia's Limbang region that divides Brunei. Malaysia claims the Singapore-controlled Pedra Branca Islands. In addition, most regional maritime boundaries are disputed. See Speed, *Maritime Issues and Naval Developments in Southeast Asia*, pp. 7-8.

[38] See Murfett, "All Bets Are Off", p. 15; and Speed, *Maritime Issues and Naval Developments in Southeast Asia*, pp. 6, 13-14.

[39] For a detailed discussion of the Indonesian situation, see S.E. Speed, *Indonesia: A Strategic Appraisal*, Research Note 97/06 (Directorate of Strategic Analysis, Department of National Defence, March 1997). On piracy see Tammy Arbuckle, "Scourge of Piracy Returns to Southeast Asia", *Jane's International Defence Review*, 29:8 (9 August 1996), pp. 26-29.

Territorial Defence Navies. Although most states in the region have undertaken modernisation programs, they have focussed on smaller craft, such as corvettes and offshore patrol vessels. Using history as a guide, vessel numbers and sophistication can be expected to vary considerably. [40] Thus, in 2020, Western naval forces operating in Southeast Asia are bound to encounter at least some regional maritime forces that are professional and well equipped with the most up-to-date technology available for export at the time.[41]

Australia and New Zealand — Two states that have a particular strategic interest in the Asia-Pacific region are Australia and New Zealand. Indeed, the Australian White Paper on defence, *Defence 2000: Our Future Defence Force*, identifies the promotion of stability in neighbouring countries and the wider Asia-Pacific region as key long-term strategic objectives after the defence of Australia. To fulfil these objectives — whether they entail aiding a neighbour facing external aggression or engaging in peacekeeping or peace-support operations abroad — a robust maritime arm to the future Australian Defence Force (ADF) is envisaged. By 2010 Australian defence spending is expected to increase by Aus$23.5 billion, with average annual expenditures to Maritime Forces of Aus$2.1 billion. These funds will be used in part to upgrade the anti-ship missile defences of the eight ANZAC-class frigates, to introduce from 2013 a new class of at least three air-defence ships, to equip the six *Collins*-class submarines with new combat systems, and to develop two multi-purpose support ships (with the replacement of HMA Ships *Westralia* and *Success* in 2009 and 2015 respectively). Such improvements will serve to sustain the Royal Australian Navy (RAN) as a technically and tactically proficient Medium *Global* Force Projection Navy (Australia's ability to uphold global security through contributions to UN peace efforts is also declared a central strategic aim in the White Paper).[42] Furthermore, with the benefit of its new ANZAC-class frigates, the Royal New Zealand Navy (RNZN) can also be expected to

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[40] For example, those states that experienced strong economic growth in the 1980s and 1990s, and that had the benefit of an educated workforce, were able build more capable forces. In 1999, "The nine navies of Southeast Asia [ranged] from the almost non-existent Cambodian flotilla and the riverine Burmese force, to the much expanded Thai and the highly sophisticated Singapore navies." As of 1999, several Southeast Asian states possessed submarine forces or a desire to acquire them, most had some surface-to-surface missile capability (including coastal missile batteries), and many an airborne strike capability. See Speed, *Maritime Forces of East Asia and the Western Pacific, pp. 33-46; and Sharpe* (ed.), *Jane's Fighting Ships 1999-2000.*

[41] It is important to note also that in the late 1990s, China began to construct, with the approval of the Myanmar authorities, a naval base on Hianggyi Island where the Bay of Bengal meets the Andaman Sea and a signals intelligence facility on Great Coco Island north of India's Andaman Islands. Murfett, "All Bets Are Off", pp. 5-6.

[42] *Australia, Defence 2000: Our Future Defence Force*. Australia Defence White Paper 2000; see also S.E. Speed, *Defending Australia: An Assessment of the New White Paper* (Ottawa: Directorate of Strategic Analysis, Department of National Defence, 2000), esp. pp. 5 and 9.

"inter-operate" closely with the RAN in future international stability operations like those undertaken in East Timor during the year 2000.[43] To conclude, it would appear that the Canadian navy can look forward to the maintenance of special ties with a professional and capable RAN and RNZN in close cooperation with the USN and RN.

South Asia

India — While not without important domestic challenges (for example, ethnic and religious fault lines and the need for substantial market reform[44]), by many accounts, India is considered to be a rising world power with significant economic, technological and military potential. Already, it is a member of the nuclear club of nations and possesses large armed forces. Political and territorial tensions, particularly with Pakistan and China, and Indian concern about Japanese and Chinese influence in Southeast Asia, cannot be discounted as potential sources of conflict within twenty years.[45]

These tensions, coupled with India's desire to protect important seaborne trade and to uphold claims to a substantial EEZ, likely will sustain the trend towards the greater modernisation of the Indian Navy, including a measure of blue water capability. [46] As of the late 1990s, many of the Indian Navy's 35 major ships and submarines were over twenty years old and in need of replacement. In 1995, the government adopted a policy that aims for 70 per cent indigenous production by 2005.[47] However, it is difficult to envision this occurring. Some Indian sources state that already there is a backlog of 30 ships for new construction.[48] One estimate puts fleet strength at 21 major vessels by 2010, others even lower.[49] India's indigenous shipbuilding industry has designed and built ships up to approximately 7,000 tons, but does not have the capacity to produce rapidly a large number of ships. On average, it takes Indian shipyards 6 to 8 years to produce ships of frigate and destroyer size.[50] The purchase of vessels offshore would help to alleviate some of the projected shortfall, but the number of foreign ships required to prevent an overall decline in the size of the Indian fleet is estimated to be unaffordable. Furthermore, those ships that are produced in India likely will be reliant on Russian technology and fitted with Russian weapon systems and equipment.[51] Thus, as with China, generally they will lag behind the technological standards of the leading Western navies.

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[43] See Richard Scott, "The Future: Commodore Peter McHaffie, Maritime Commander New Zealand (Now Chief Of Naval Staff)", *Navy Today* (Wellington: Naval Staff), p. 7.

[44] Along with the challenge of Hindu nationalism, there exist secessionist tendencies in the Punjab, Kashmir and Tamil-Nadu. Scott Roberston, *Military Assessment*, ORD Report R9904 (Ottawa: Directorate of Defence Analysis, Department of National Defence, August 1999), pp. 24-25. For an economic analysis see K.S. Nathan, "China, India, and Asian Balance of Power in the 21st Century", *Asian Defence Journal* 194:1 (April 1999), p. 7.

[45] See Khalizad and Lessor, *Sources of Conflict in the 21st Century*, p. 150; Roberston, *Military Assessment*, pp. 25, 28-29; and K.S. Nathan, "China, India, and the Asian Balance of Power in the 21st Century", *Asian Defence Journal* 194:1 (April 1999), pp. 6-9.

[46] 80 percent of India's oil is transported by sea. See Aabha Dixit, "Indian Navy: Working out of a financial and operational crisis?" *Asia-Pacific Defence Reporter*, 23:3/4 (March- April 1996), pp. 20-21; Jakubow et al, *Strategic Overview* 1999, p. 59.

[47] Rahul Bedi, "Mixed fortunes for India's defence industrial revolution", *Jane's International Defence Review*, 32 (May 1999), pp. 22-30.

[48] J.G. Nadkarni, "Indian Navy Stands at a Crossroads", *USNI Proceedings*, 124:3 (March 1998), p.72; Dixit, "Indian Navy", pp. 20-21.

[49] Rahul Bedi, "Making Ends Meet," *Jane's Defence Weekly*, 31:18 (May 5, 1999), pp. 24-34; R.P. Khanna, "India's Naval Defence Doctrine", *Asian Defence Journal*, 282:10 (October 1998), p. 22.

That said, India's maritime forces likely will continue to represent a viable, and much improved, Medium Regional Force Projection Navy over the next two decades. Indeed, the Indian Navy seems determined to maintain a blue water capability that includes carrier aviation, surface combatants and a capable submarine force. There remains the possibility, moreover, that it may acquire a nuclear submarine prior to 2020.[52] Additionally, indigenous development programs have had some success in the areas of missile and information technology and information warfare.[53] India also is exploring the acquisition of Airborne Early Warning aircraft and the use of satellite capabilities.[54] Hardware and software aside, the Indian Navy's well-trained sailors have decades of experience in blue water operations with a wide range of maritime capabilities. In conclusion, by 2020, the Indian Navy is projected to be a tactically competent, modernised, although smaller force, capable of regional power projection.

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[50] Khanna, "India's Naval Defence Doctrine", p. 22; Sharpe (ed.), *Jane's Fighting Ships 1999-2000*, pp. 297-316; Andres de Lionis, "Mix and match: India's puzzling approach to naval procurement", *Jane's Intelligence Review*, 10:11 (November 1998), pp. 32-34.

[51] Nadkarni, "Indian Navy Stands at a Crossroads", p. 71.

[52] This project has been in various stages of development on and off again for in excess of 20 years and is now forecast to be commissioned in the 2004 -2008 time frame. This project, the ATV (Advanced Technology Vessel) has and is absorbing a large amount of funding. de Lionis, "Mix and Match", p. 34; Bedi, "Making Ends Meet", p. 32.

[53] Bedi, "Mixed fortunes for India's defence industrial revolution", pp. 28-30; Mohammed Ahmedallah, "PRITHVI", *Military Technology*, 23:4 (September 1998), pp. 76-78.

[54] Robert Karnoil, "Asian Arena", *Jane's Defence Weekly*, 32:21 (November 24, 1999), pp. 27-37.

Conclusion

To conclude, it is apparent that in 2020 Canadian and allied maritime forces can expect, and must be ready to encounter the full range of naval capabilities, from the rudimentary yet potentially damaging coastal defence force, to the proficient regional blue water fleet. Indeed, the spread of advanced weapons in the form of anti-ship missiles, submarines, and modern surface combatants, the potential for the emergence of new-age threats such as directed energy weapons, together with the persistence of older but still effective technology such as mines, means that Canada must sustain and upgrade the naval capabilities of the Canadian Forces. To do less, would unduly place in jeopardy not only Canada's ability to participate in multinational stability operations, but the lives of the sailors and airmen charged to carry out Government policy.

GLOSSARY

GLOSSARY

The references quoted in brackets after some entries are source documents.

SOURCE DOCUMENTS

AAP 6	NATO Glossary of Terms and Definitions
Adjusting Course	*Adjusting Course: A Naval Strategy for Canada, 1997*
B-GG-005-004/AF-000	CF Operations Manual, *The Keystone Manual*
BR 1806	*British Maritime Doctrine*
C2W Handbook	
DP 2001	*Defence Plan 2001*
Joint Pub 1-02	*Department of Defense Dictionary of Military and Associated Terms (US DoD).*
MS/MCP 1	Military Studies, Maritime Component Programme: Naval Doctrine Manual (Canadian Forces College)
NDP 1	*Naval Doctrine Publication 1* (USN)
RAN Doctrine 1 2000	*Australian Maritime Doctrine*
SCP	*Strategic Capability Planning for the CF*
UNCLOS	United Nations Convention on the Law of the Sea

A

AAW

Anti-Air Warfare. Operations conducted to destroy or reduce to an acceptable level the enemy air and missile threat. *(Adjusting Course)*

AOR

Auxiliary Oiler Replenishment Vessel *(Adjusting Course)*

ASW

Anti-Submarine Warfare. Operations conducted with the intention of denying the enemy the effective use of his submarines. *(AAP-6)*

ASuW

Anti-Surface Warfare. Operations conducted against an opponent's surface warships or merchant vessels. (*Adjusting Course*)

Advanced Logistics Support Site (ALSS)

The primary transhipment point for material and personnel destined to and from afloat units. In a NATO operation the ALSS commander reports to the Multinational Logistics Commander (MNLC). Daily coordination must be conducted with *Forward Logistics Sites* (FLS). *(BR 1806)*

Aid of the Civil Power

CF assistance provided at the request of an attorney general of a Province or Territory in any case in which a riot or disturbance of the peace occurs or is considered likely to occur and which is beyond the powers of civil authorities to suppress. *(DP 2001)*

Asymmetric Threats

An attempt by an opposing party to avoid the traditional strengths of our existing military force by employing unexpected or unusual techniques to gain an advantage. This can include the use of surprise in all its operational and strategic dimensions, as well as the use of weapons in ways not expected by the Canadian Forces. Three broad approaches that potential opponents of the CF might employ to gain an asymmetric advantage are to use *Weapons of Mass Destruction*, cyber-warfare, or choosing to fight only in complex terrain. *(DP 2001)*

B

Battlespace

All aspects of air, surface, subsurface, land, space and the electromagnetic spectrum that encompasses the area of influence and area of interest in a campaign or operation. *(MS/MCP 1)*

Battlespace Dominance

The degree of control over the dimensions of the *battlespace* that enhances friendly freedom of action and denies the enemy freedom of action. It permits power projection and force sustainment to accomplish the full range of potential missions. *(BR 1806* and *MS/MCP 1)*

Business Plan

Identifies an organisation's objectives, its strategies to achieve those objectives (given the environment in which the organization exists and the needs of its clients), the performance measures it will use to measure progress and to meet its performance goals (i.e., commitments and targets). The Business Plan responds to Key Results and Expectations by setting Output Levels within the constraints of the DPG. It is also the primary vehicle for vertical accountability. *(DP 2001)*

C

Canadian Joint Task List (CJTL)

To ensure a common lexicon for the discussion of Canadian Forces capabilities, a Canadian Joint Task List (CJTL) has been developed and linked to similar allied Joint Task Lists. The CJTL establishes an outline for describing and relating the types of capabilities that may be required, to greater or lesser degrees, by the CF. The CJTL provides a common language for those involved in DND/CF force development. This framework was endorsed by a Special Senior Management Oversight Committee chaired by the *DM* and *CDS* in March 2000. *(DP 2001)*

Capability

Capability is a function of the ability of a force to preplan a mission and its capacity to do so. It is generally a function of force structure (organization and equipment) plus training and logistic support. Capability may be defined as the ability to deal with the risks identified in the scenario associated with a Defence Mission Objective or the risks associated with actual operations. It includes the availability of personnel and materiel as well as a quantitative and qualitative assessment. *(DP 2001)*

Chapter VI Operations

Operations conducted under the authority of Chapter VI of the United Nations Charter. Generally refers to impartial third party operations that are tasked to monitor or implement a cease-fire or separation of forces. Consent of the parties is generally a pre-condition and the use of force is authorised only in self-defence. The United Nations Peacekeeping Force in Cyprus is a good example. *(DND - Assistant Deputy Minister Policy)*

Chapter VII Operations

Operations conducted under the authority of Chapter VII of the United Nations Charter. Generally refers to actions, including the used of armed forces, to maintain or restore international peace or security. Enforcement actions may be conducted under UN leadership or by a coalition of member states acting on behalf of the UN. The enforcement actions against Iraq throughout the 1990s are a good example. (DND - Assistant Deputy Minister Policy)

Civil Military Cooperation (CIMIC)

All actions and measures undertaken by a military commander which concern the relationship between a military force and the government, civil agencies or civilian population in the areas where the military force is stationed or employed. *(B-GG-005-004/AF-000)*

Coercion

The use of force, or the threat of force to persuade an opponent to adopt a certain pattern of behaviour, against his wishes. *(BR 1806)*

Combat-capable

The state of a force structure and associated equipment that reflects the ability to execute a combat mission. *(DP 2001)*

Combat Service Support

The support provided to combat forces, primarily in the fields of administration and logistics. *(DP 2001)*

Combined

An adjective that connotes activities, operations, organisations, etc between two or more forces or agencies of two or more allies. See also *joint*. *(SCP)*

Combined Joint Operation

An operation carried out by forces of two or more nations, in which elements of at least two services participate. *(AAP 6)*

Command and Control

The activities, outputs, infrastructure, materiel and personnel to: direct, coordinate and control the generation and employment of forces; to provide and respond to strategic and operational guidance (doctrine and direction) and policy. *(DP 2001)*

Command

Strategic Level

Develop and revise national and multinational military strategy and provide strategic direction. Military strategic direction is provided by NDHQ. *(SCP)*

Operational Level

Command in battle requires firm adherence to the military aim, but flexibility of method. Command is the most important element in ensuring that operational capability is directed towards achievement of the military objective. Command is the intelligent exercise of authority over assigned and attached joint and multinational forces to accomplish the mission. Includes planning, directing, coordinating, and controlling forces in conducting campaigns and operations. *(SCP)*

Tactical Level

To exercise authority and direction over assigned or attached forces in the accomplishment of a mission. C2 involves arranging personnel, equipment, and facilities during the planning and conducting of military operations. *(SCP)*

Command of the Sea

The freedom to use the sea and to deny its use to an adversary in the sub-surface, surface and above-water environments. *(AAP 6)*

Conduct Operations

Strategic Level

The conduct of operations at the national level requiring co-ordination of high level issues across multiple boundaries of responsibility, both within DND/CF and frequently across Government lines of Responsibility. *(SCP)*

Operational Level

The nature of the strategic objectives will determine both the military objectives and the scope and intensity of military operations. Military success, therefore, is the achievement of an 'end state', that is to say a state of affairs which meets given objectives. Effecting this end state is achieved through shaping the *Joint Operations Area (JOA)* and attacking the enemy's cohesion. *(SCP)*

Tactical Level

Apply Joint Force packages to achieve operational objectives. *(SCP)*

Confidence Building Measures (CBM)

Steps taken by past, present or potential adversaries to create a positive change in their security relationship by establishing trust and reducing the risks inherent in misunderstanding or miscalculation. Examples include agreements to prevent incidents at sea, prior notification of major military activities, inviting observers to witness exercises and, ultimately, active cooperation.

Constabulary actions/roles

Constabulary application (or use) of force: The use of military force to uphold a national or international law, mandate or regime in a manner in which minimum violence is only used in enforcement as a last resort and after evidence of a breach or intent to defy has been established beyond a reasonable doubt. The level and type of violence that is permitted will frequently be specified in the law, mandate, or regime that is being enforced. Also called policing. *(BR 1806)*

Contingency

An unforecast or chance situation which may require a military response. *(B-GG-005-004/AF-000)*

Contingency Operations

Those operations dealing with contingency events in support of Canadian interests at home and abroad, requiring the application of military forces or the provision of military assistance. *(DP 2001)*

Corporate Strategy and Policy

Strategic Level

Pursue national security through co-ordination with other government departments, international alliance, and non-governmental agencies. *(SCP)*

Operational Level

Provide liaison with allied and host government. *(SCP)*

Tactical Level

Ensure efficient interactions between national force and allied force, other government departments, and non-governmental organisations. *(SCP)*

D

Deployability

The ability for personnel and materiel to be moved to a theatre of operations. Important considerations include force size, time required to be in theatre, distance of the operational theatre from the normal base of operations and the local conditions in the theatre. *(DP 2001)*

Deterrence

The convincing of a potential aggressor that the consequences of coercion or armed conflict would outweigh the potential gains. This requires the maintenance of a credible military capability and strategy with the clear political will to act. *(AAP 6)*

Disaster Relief

Activities undertaken by military forces, in cooperation with civil authorities, to provide aid in the wake of a natural or manmade disaster such as a hurricane, flood, earthquake, forest fire, chemical spill, or nuclear accident. *(Adjusting Course)*

Doctrine

Fundamental principles by which military forces guide their actions in support of (national) objectives. It is authoritative but requires judgement in application. *(AAP-6)*

E

Exclusive Economic Zone (EEZ)

The zone of sea around a state over which it has exclusive rights under international law to exploit economic resources. (MS/MCP1)

Within this zone (which may extend to 200 nautical miles under UNCLOS III), the state has jurisdiction and control over the exploration, exploitation, management, and conservation of the natural resources of the waters, seabed, and subsoil. Ships and aircraft enjoy high seas freedoms of navigation and overflight unless they infringe upon the coastal states' economic rights within the EEZ. *(Adjusting Course)*

F

Fleet in Being

The use of options provided by the continued existence of one's own fleet to constrain the enemy's options in the use of his. *(BR 1806 and MS/MCP 1)*

Force Development

Planning and conceptualising associated with the creation, maintenance and adaptation of military capabilities in the face of changing security and resource circumstances. Ideally, force development should be holistic, that is, encompass the entire range of considerations associated with creating, maintaining and adapting military capability. *(SCP)*

Force Generation

Strategic Level

The process of bringing forces, or part of them, to a state of readiness for operations, by assembling, and organising personnel, supplies, and materiel. This task includes the training and equipping of forces and the provision of their means of deployment, sustainment and recovery to meet all current and potential threats. Account must be taken of the need to cater for concurrent operations and timely recuperation. It also embraces the mobilisation, regeneration and reconstitution necessary to meet a major conflict, such as general war, and the long-term development of capability to meet changing circumstances. *(SCP)*

Operational Level

Establish, direct, and control the facilities and personnel required to improve in-theatre performance. Develop *doctrine* and requirements to facilitate effective *joint* operations at the operational level. *(SCP)*

Tactical Level

Establish, direct and control the facilities and personnel required to prepare units for operational missions. *(SCP)*

Force Multiplier

A capability that, when added to and employed by a combat force, significantly increases the combat potential of that force and thus enhances the probability of successful mission accomplishment. (Joint Pub 1-02)

Force Planning Scenarios

A set of eleven force planning scenarios provides the context in which *CF* capability requirements and force structure options will be assessed. They span the spectrum of conflict and describe operations representative of those anticipated by the *CF*. The scenarios will evolve as required to ensure they continue to reflect the strategic environment and Canada's defence perspectives. Detailed descriptions of the scenarios are available from the *OPI*, Director General Strategic Planning/Director Defence Analysis *(DGSP/DDA)*, or on the *DDA* Internet and Intranet sites. Requirements for capability, readiness, sustainability and deployability will be derived from the scenarios in conjunction with Defence Objectives and Tasks. *(DP 2001)*

Force Structure

The composition of the forces in terms of types of formations and units and their equipment together with relationship to one another. *(DP 2001)*

Forward Logistics Site (FLS)

Normally the final land transhipment point for materiel and personnel which provides a bridge between an *Advanced Logistics Support Site (ALSS)* and the sea. It will be linked to the ALSS by intra-theatre airlift. In a NATO operation the FLS commander reports directly to the Multinational Logistics Commander (MNLC). Daily coordination with the ALSS commander must be conducted. *(BR 1806)*

Freedom of the Seas

Freedom of the high seas comprises, *inter alia*, freedom of navigation (including submerged transit), freedom of fishing, freedom to lay submarine cables and pipelines, and freedom to fly over the high seas. Some of these freedoms are limited where a coastal state claims an exclusive fishery zone, an exclusive economic zone, or a contiguous zone. These freedoms are also enjoyed by landlocked states, which are given the right to sail ships under their own flags on the high seas (Article 90). As a general rule, a ship on the high seas is subject only to international law and to the laws of the flag state. *(UNCLOS, articles 87 and 90)*

H

Hard Kill

A method of physical destruction of a target or attacking weapon.

High-level Operations

The entire range of modern weaponry may be used, including *weapons of mass destruction*. The sustained conduct of such operations will demand the mobilisation of a nation's entire military potential. Military activity will be conducted continuously with maximum speed and violence throughout the theatre. *(DP 2001 and SCP)*

High Seas

All parts of the sea that are not included in the internal waters or territorial seas of coastal states. All states have the freedom to navigate or conduct other activities, subject to certain restrictions, on the high seas. Where states have declared other zones beyond the territorial sea (contiguous zone, exclusive economic zone, continental shelf), the traditional high seas freedoms are affected by the rights that coastal states can exercise in such zones. *(BR 1806)*

Host Nation Support (HNS)

Civil and/or military assistance rendered by a nation to foreign forces within its territory during peace, times of crisis or armed conflict based upon agreements mutually concluded between nations. *(MS/MCP 1)*

Humanitarian Assistance

Activities conducted by military forces, mostly in urgent circumstances, to relieve human suffering, especially when local or governmental authorities are unable, or possibly unwilling, to provide adequate aid to the population. Humanitarian aid can take the form of protection against epidemics, provision of food aid, medical aid or assistance in public health efforts such as re-establishing essential infrastructures, with or without the consent of the State, if sanctioned by a UN resolution. *(DP 2001)*

I

Information Operations (Information Warfare) (IO/IW)

Actions taken in support of national objectives which influence decision makers by affecting other's information while exploiting and protecting one's own information. *(DP 2001)*

Information Systems

The assembly of equipment, methods and procedures and, if necessary, personnel, organised so as to accomplish specific information processing functions. *(DP 2001)*

Information and Intelligence

Strategic Level

Provide Intelligence, Strategic Surveillance and Reconnaissance as Required by Strategic Consumers for formulating National Level Policy, Strategy, Military Plans and Ops. *(SCP)*

Operational Level

Embraces all knowledge needed by the commander and force, including intelligence on the enemy, own forces, weather and geography. Accurate, timely information enables the commander to plan and act flexibly and to strike a balance between demands of concentration of force, economy of effort and security; it reduces risk. Operational *surveillance* and *reconnaissance* are included. *(SCP)*

Tactical Level

The Intelligence architecture will be tailored to fit the operation and take into account issues such as access to intelligence databases, links to sources and agencies and the provision of the most efficient information flow between the component parts of the *Intelligence, Surveillance*, Target Acquisition and Reconnaissance system. *(SCP)*

Infrastructure

A term generally applicable for all fixed and permanent installations, fabrications, or facilities for the support and control of military forces. *(DP 2001)*

Intelligence

The product resulting from the processing of information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organisations engaged in such activity. *(AAP 6)*

Interoperability

The ability of systems, units or forces to provide services to and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together. *(AAP 6 and SCP)*

J

Joint

An adjective that connotes activities, operations, organisations, etc in which elements of more than one service of the same nation participate. (When all services are not involved, the participating services shall be identified). *(SCP)* See also *combined*.

L

Littoral/Littoral Region

The coastal sea areas and that portion of the land which is susceptible to influence or support from the sea, generally recognized as the region which horizontally encompasses the land-watermass interface from 100 kilometres (km) ashore to 200 nautical miles (nm) at sea, and extending vertically into space from the bottom of the ocean and from the land surface. *(based on BR 1806 and USN Oceanographic Command)*

Logistics

The science of planning and carrying out the movement and maintenance of military forces. In its most comprehensive sense, those aspects of military operations which deal with: a. design and development, acquisition, storage, movement, distribution, maintenance, evaluation, and disposition of materiel; b. movement, evacuation, and hospitalisation of personnel; c. acquisition or construction, maintenance, operation, and disposition of facilities; and d. acquisition or furnishing of services. *(AAP-6; CFP 300-1* notes: "In Canadian operations, the movement, evacuation, and hospitalisation of personnel are not logistics functions.")

Low-level Operations

Military operations that are normally conducted by forces-in-being, applying the minimum force necessary to achieve the mission. Contact with opposing forces may be infrequent. *(DP 2001* and *SCP)*

M

Main Contingency Force

As a matter of general principle the *CF* will be prepared to deploy on UN operations contingency forces of up to a maritime task group, a brigade group plus an infantry battalion group, a wing of fighter aircraft, and a squadron of tactical transport aircraft. *(DP 2001)*

Manoeuvre Warfare

A war-fighting philosophy that seeks to defeat the enemy by shattering his moral and physical cohesion — his ability to fight as an effective, coordinated whole — rather than by destroying him physically through incremental attrition. *(BR 1806)*

Maritime Forces

Forces whose primary purposes are to conduct military operations at and from the sea. The expression includes warships and submarines, auxiliaries, organic aircraft, fixed seabed installations, fixed shore installations (such as batteries) for the defence of seaways, shore based maritime aircraft and other shore based aircraft assigned to maritime tasks. *(BR 1806)*

Maritime Interdiction Operation (MIO)

The surveillance, interception and, if necessary, boarding of commercial vessels to verify, re-direct or impound their cargoes in support of the enforcement of economic sanctions.

Maritime Manoeuvre

The ability to use the unique access provided by the sea to apply force or influence at a time and place of ones own choosing. Sometimes referred to as manoeuvre from the sea.

Maritime Power Projection

The ability to project, sustain and apply effective military force from the sea in order to influence events on land. *(RAN Doctrine 1, 2000)*

Materiel

Equipment or supplies used by an organisation or institution, or required by some work or enterprise. All items (including ships, tanks, self-propelled weapons, aircraft, etc., and related spares, repair parts, software and support equipment, but excluding real property, installations and utilities) necessary to equip, operate, maintain and support defence-related activities, without distinction as to their application for administrative or combat purposes. *(DP 2001)*

Mid-level Operations

Military operations that involve most, if not all, of a nation's forces-in-being and may require the mobilisation of additional resources. Deadly force will be applied, although there may be restrictions on the types of weapons used or the geographic area in which they are employed. Military activity will be conducted with speed and violence, but may be non-continuous and localised in an area of operations. *(DP 2001* and *SCP)*

Military Strategy

The art and science of employing the armed forces of a nation to secure the objectives of national policy by the application of force or the threat of force. *(C2W Handbook)*

Mission

An organisation's mission and mandate refer to the purpose(s) it serves, or the reason(s) for its existence. *(DP 2001)*

or

The essential activities assigned to an individual, unit, or force. It contains the elements of who, what, when, where, and the why (reasons therefore), but seldom specifies how. *(SCP)*

Mobility

Strategic Level

Deploy the generated force and cargo to the theatre of operations, redeploy within theatre, or to another theatre, to meet new objectives. Once the purpose is achieved, recover the force to its home base. *(SCP)*

Operational Level

Deployment which includes the mounting and strategic deployment, reception, and the onward deployment in-theatre also involves establishing the LOC infrastructure. Recovery is the return of the force, its equipment and any unused stock to Canada, and the dismantling of the supply and movements infrastructure. *(SCP)*

Tactical Level

To move forces to achieve a position of advantage with respect to enemy forces. This task includes the employment of forces on the battlefield in combination with fire or fire potential. Manoeuvre is the dynamic element of combat, the means of concentrating forces at the decisive point to achieve surprise, psychological shock, physical momentum and moral dominance which enables smaller forces to defeat larger ones. The task includes the movement of combat and support units. *(SCP)*

Multinational Operation

A collective term to describe military actions conducted by forces of two or more nations, typically organised within the structure of a coalition or alliance. *(Joint Pub 1-02)*

Multi-purpose Forces

Flexible, combat-ready armed forces capable of operating effectively and efficiently in a multi-threat environment. *(DP 2001)*

N

Naval (Maritime) Diplomacy

The use of maritime forces in support of diplomacy to support, persuade, deter, or compel. (based on *BR 1806)*

Naval Fire Support

Fire provided by naval gun, missile and electronic-warfare systems against targets ashore in support of a unit or units on land.

Non-Combatant Evacuation Operation (NEO)

An operation to relocate to a place of safety non-combatants threatened in a foreign country. *(BR 1806)*

O

Oceans Management

The broader regimen of inter-departmental and inter-agency measures, official and otherwise, undertaken within both domestic and international contexts, with the aim of ensuring the regulation of activities on, under and above the sea.

Operational Forces

Activities and outputs that are either directly involved in military operations or are part of a contingent capability to conduct military operations. Consists of forces (regular, reserve and mobilisation), materiel and tactical/theatre service support. Includes collective and mission specific training. *(DP 2001)*

Operational Level

The operational level of conflict is concerned with producing and sequencing the campaign which synchronises military and other resources to achieve the desired end state and military strategic objectives. Military actions at the operational level are usually joint and often combined. *(SCP)*

Operations

Either routine or emergent. Routine operations are generally activities that are either constabulary or conducted in Operations Other Than War. They can generally be planned for. Emergent operations are generally those that are conducted during periods of pre-hostility and hostilities. *Constabulary* or *OOTW* that arise but are unplanned are also emergent operations. *(DP 2001)*

or

The carrying out of service, training, or administrative military mission; the process of carrying out combat (and non-combat) military actions. *(SCP)*

Operations Other than War (OOTW)

Encompasses the use of military capabilities across the range of military operations except those associated with sustained, large-scale combat operations usually associated with war. OOTW are very broad in scope and range from domestic operations within Canada to peace-enforcement operations abroad. *(DP 2001)*

P

Peace-building

Post-conflict action to identify and support measures and structures which will solidify peace and build trust and interaction among former enemies, in order to avoid a relapse into conflict. A component of peace-building is peace-implementation, which is the deployment of an international military presence in the field, hitherto with the consent of all the parties concerned, to implement the military provisions of a peace agreement. These operations are carried out under Chapter VII of the UN Charter; troops are more heavily armed than traditional peacekeepers and are authorized to use force beyond self-defence. *(DP 2001)*

Peace-enforcement

Operations carried out to restore peace between belligerent parties who do not all consent to intervention and who may be engaged in combat activities. These operations are carried out as a provisional measure under Chapter VII, Article 40 of the UN Charter. Troops are heavily armed and authorised to use force beyond self-defence. Peace-enforcement is distinct from enforcement under Chapter VII, Article 42 of the Charter, which deals with acts of aggression. *(DP 2001)*

Peacekeeping

The deployment of an international presence in the field, hitherto with the consent of all parties concerned, normally involving UN military and/or police personnel and frequently civilians as well. These operations are carried out under Chapter VI of the UN Charter; troops are lightly armed and are authorised to use force only in self-defence. *(DP 2001)*

Peacemaking

Action to bring hostile parties to a negotiated agreement through diplomacy, mediation, and such peaceful means as those foreseen in Chapter VI of the UN Charter. *(DP 2001)*

Peace Support Operations (PSO)

A generic term, describing operations designed not to defeat an aggressor, as in the case of war, but rather to assist diplomatic and humanitarian activities to achieve a long-term political settlement. The five forms of peace support operations include preventive diplomacy, peacemaking, peacekeeping, peace-enforcement and post-conflict peace building. *(DP 2001)*

Power Projection

See Maritime Power Projection

Presence

The exercise of naval diplomacy in a general way involving deployments, port visits, exercising, and routine operating in areas of interest to declare interest, reassure friends and allies and to deter. *(BR 1806 and MS/MCP 1)*

Preventive Deployment

The deployment of forces to contribute to preventing the development of a specific crisis or conflict. *(MS/MCP 1)*

Preventive Diplomacy

Action to prevent disputes from arising between parties and/or to prevent existing disputes from escalating into conflict. It can include a preventive deployment of forces, prior to the outbreak of conflict, to defuse tension, enhance confidence, and prevent minor incidents from escalating inadvertently to full-scale hostilities. *(DP 2001)*

Protect Forces

Strategic Level

Determine measures to best protect national infrastructure and mobilisation base from damage in the event of attack. *(SCP)*

Operational Level

Embraces all aspects of protecting bases, platforms, weapons, men, materiel and information. Aim is to preserve commander's freedom of action and minimise effects of enemy action; a balance needs to be struck between absolute security and other imperatives such as mobility, flexibility and surprise. Security includes dominating the electromagnetic spectrum. Conserve the force's fighting potential so that it can be applied at decisive place and time. Includes actions to counter enemy forces by making friendly forces, systems and facilities difficult to locate, strike and destroy. *(SCP)*

Tactical Level

Protect military units, personnel, equipment, areas, activities and supplies from enemy and friendly systems and natural occurrences. This includes mitigating the effects of NBC and radiological weapons, and - so far as is practical - maintaining the mobility and counter-mobility of operational forces, as well as protecting forces against combat area hazards. *(SCP)*

R

Reconnaissance

A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. *(AAP 6)*

Roulement

The rotation of personnel or units in the front line with those in reserve in order to maintain the fighting effectiveness of the forces engaged in an operation. *(BR 1806)*

S

Search and Rescue (SAR)

The use of aircraft, surface craft, submarines, specialised rescue teams and equipment to search for and rescue personnel in distress on land or at sea. *(AAP 6)*

Sea Control

The condition that exists when one has freedom of action within an area of sea for one's own purposes for a period of time in subsurface, surface and above water environments. *(AAP 6)*

Sea Denial

Preventing an adversary from controlling a maritime area without being able to control that area oneself. *(AAP 6)*

Sealift

The movement of resources between points by carriage in shipping. *(BR 1806)*

Soft Kill

Method of defeating a target or an attacking weapon through the use of deception, seduction or confusion methods.

Sovereignty

A difficult and complex concept, sovereignty comprises both emotional and rational components and is often a matter of perception. It relates to the state's monopoly on the use of force within its territory and is tied to the recognition of a political body as a state. Implicit within the concept of sovereignty is the ability of the state to be aware of and control activity within its borders. In a simple sense, sovereignty stems from the state's position as final authority over matters within its territory. With the rise of international corporations, the emergence of multinational organisations such as the UN and EU, and the continuing importance of transnational forces like religion, ethnicity, and culture, state sovereignty has diminished but remains a significant force in the world. *(Adjusting Course)*

Sovereignty Patrol

A specific form of presence undertaken within a state's area of maritime responsibility, in support of nation building, to reinforce claims in contested waters, or otherwise "to show the flag" in a domestic context.

Strategic Level (Military)

The Military strategic level is concerned with determining the military strategic objectives and desired end state, outlining military action needed, allocating resources and applying constraints directed by political leaders. *(SCP)*

Strategic Level (National)

The level where the nature and quantity of a country's resources dedicated to achieving objectives critical to the national security interest is determined by the political leadership of the country. *(SCP)*

Strategy

The art and science of developing and using political, economic, psychological, and military forces as necessary during peace and war, to afford the maximum support to policies, in order to increase the probabilities and favourable, consequences of victory and to lessen the chances of defeat. *(C2W Handbook)*

Support to Other Government Departments (OGD)

Assisting Other Government Departments and other levels of Government, at their request, in achieving national goals in areas such as fisheries protection, drug interdiction and environmental protection. *(DP 2001)*

Surveillance

The systematic observation of aerospace, surface or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means in order to build up and maintain a comprehensive picture of deployment patterns, movements and/or operational activity at sea. *(AAP-6)*

Sustainability

The time that consumables such as critical spares, Petroleum, Oils and Lubricants, munitions and food can be maintained enabling forces to remain engaged in operations. The usage of these items is heavily dependent on the nature of the conflict. Operations other than war and periods leading up to hostilities will generally use significantly less consumables, especially munitions, than during periods of hostilities. *(DP 2001)*

Sustainment

The requirement for a military force to maintain its operational capability for the duration required to achieve its objectives. Sustainment consists of the continued supply of consumables, and the replacement of combat losses and non-combat attrition of equipment and personnel. *(DP 2001)*

Sustainment

Strategic Level

Maintain the necessary level of military logistic activity for the duration required to achieve the objectives. *(SCP)*

Operational Level

Provide logistic and other support required to sustain the force on operations within the theatre. Includes identification of operational requirements and establishment of priorities for employment of resources provided. *(SCP)*

Tactical Level

Any military force requires sustainment during every stage of a campaign, from force generation to recovery and afterwards. Without adequate sustainment, a significant proportion of the means and will to fight will be lost. *(SCP)*

Symbolic Use of Force

A form of Naval diplomacy in which naval forces can be used purely to signal a message to a specific government while not in themselves posing any threat to an opponent or providing significant military assistance to a friend. *(BR 1806)*

T

Tactical Level

The tactical level is concerned with planning and directing military resources in battles, engagements and/or activities with a sequence of major operations to achieve operational objectives. The main focus of this level is combat operations, but the same logic is applicable to military operations other than combat. *(SCP)*

Task-Tailored Force

A temporary grouping of units/formations, under one commander, formed for the purpose of carrying out a specific operation or mission. *(DP 2001)*

Task Force

A temporary grouping of units, under one commander, formed for the purpose of carrying out a specific operation or mission. *(AAP 6)* In a functional or task organization a TF is the highest level of echelonment. *(BR 1806)*

Task Group

A grouping of units under one commander subordinate to a task force commander, formed for the purpose of carrying out a specific function or functions. The second highest level of echelonment in a task organization. *(BR 1806* and *MS/MCP 1)*

Track Two Diplomacy

Interaction among people from adversarial groups or nations, intended to explore issues and solutions on an informal and unofficial basis. Typically, this takes the form of academic conferences in which, for example, military officers, government officials and academics participate as private individuals rather than as official representatives.

U

UNCLOS

United Nations Convention on the Law of the Sea. UNCLOS III refers specifically to the Convention which was signed in 1982 and which came into force in November 1994.

V

Vanguard

The Vanguard is that portion of the *Main Contingency Force* that is maintained at a higher readiness and that deploys in advance of the main force. *(DP 2001)*

W

Weapon(s) of Mass Destruction (WMD)

Weapons of Mass Destruction are weapons that are capable of a high order of destruction and/or being used in such a manner as to kill large numbers of people. Can be nuclear (*a device which produces an explosive nuclear reaction*), chemical (a chemical substance which is intended for use in military operations to kill, seriously injure, or incapacitate man through its physiological effects), biological (a micro-organism or organic bi-product which causes disease in man, plants, or animals or causes the deterioration of material), or radiological (*a device which causes damage or death through the radiation effects of nuclear material*) weapons, but excludes the means of transporting or propelling the weapons where such means is a separable and divisible part of the weapon. (*Joint Pub 1-02*, bracketed definitions taken from *AAP-6* unless in italics)